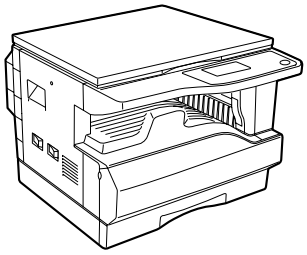
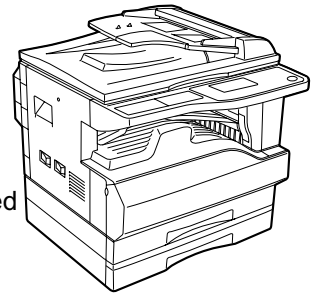
SHARP SERVICE MANUAL

CODE : 00ZARM207/A1E



AR-M162
AR-M165



AR-M207
With the RSPF installed

DIGITAL COPIER

MODEL AR-M207 AR-M165 AR-M162

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Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CAUTION

This product is a class 1 laser product that complies with 21CFR 1040.10 and 1040.11 of the CDRH standard and IEC825. This means that this machine does not produce hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eye's retina, there is the danger of spot damage to the retina.
The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

1) When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not as individual parts.
2) Do not look into the machine with the main switch turned on after removing the developer unit, toner cartridge, and drum cartridge.
3) Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
4) The middle frame contains the safety interlock switch.
   Do not defeat the safety interlock by inserting wedges or other items into the switch slot.

Warning!
This product is a class A product.
If it is operated in households, offices or similar surroundings, it can produce radio interferences at other appliances, so that the user has to take adequate countermeasures.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

KLASS 1 LASERAPPARAT

VAROITUS!
LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING
OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

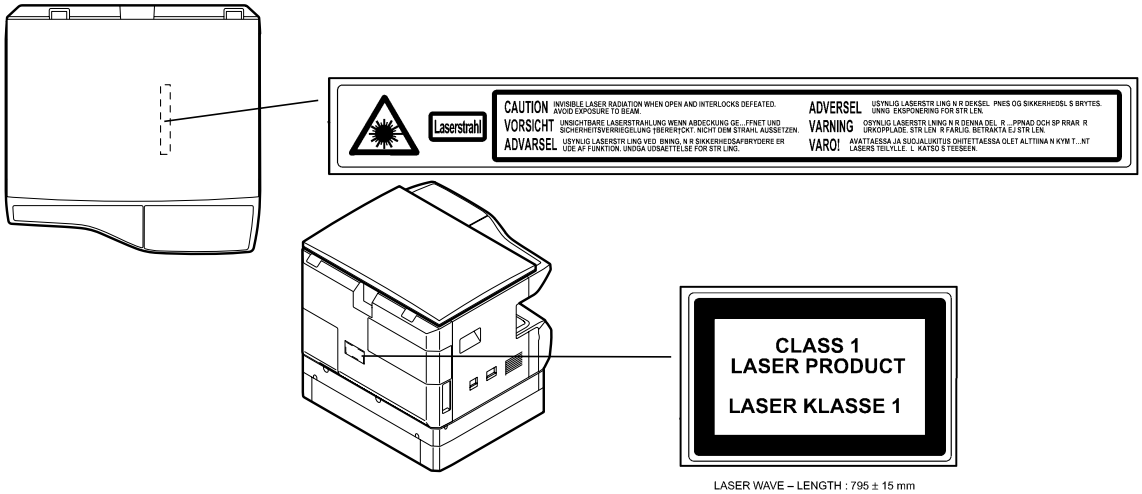
CAUTION
INVISIBLE LASER RADIATION,
WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

VORSICHT
UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

VARO !
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN.

ADVARSEL
USYNLIG LASERSTRÅLNING VED ÅBNING, NÅR SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLNING.

VARNING !
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN. – STRÅLEN ÄR FARLIG.


Laserstrahl
CAUTION INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GE...FFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
ADVARSEL USYNLIG LASERSTR LING VED BNING, N R SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STR LING.
ADVERSEL USYNLIG LASERSTR LING N R OEKSEL PNES OG SIKKERHEDSL S BRYTES. UNNG EKSPONERING FOR STR LEN.
VARNING OSYNLIG LASERSTR LNING N R DENNA DEL R ...PPNAD OCH SP RRAR R URKOPPLADE. STR LEN R FARLIG. BETRAKTA EJ STR LEN.
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA N KYM T...NT LASERS TEILYLLE L KATSO S TEESEEN.
CLASS 1
LASER PRODUCT
LASER KLASSE 1

LASER WAVE – LENGTH : 795 ± 15 mm
Pulse times : 0.481 ms/6 mm
Out put power : 5 mW

Disconnect the AC cord before servicing the unit.

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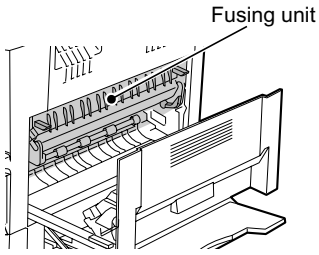
[1] GENERAL

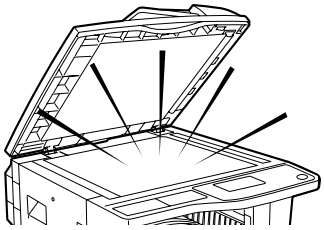
1. Cautions on using

A. Warning

• The fusing area is hot. Exercise care in this area when removing misfed paper.



•Do not look directly at the light source. Doing so may damage your eyes.



B. Cautions

• Do not switch the machine rapidly on and off. After turning the machine off, wait 10 to 15 seconds before turning it back on.
• Place the machine on a firm, level surface.
• When the machine is not used for a long time, for example, during prolonged holidays, turn the power switch off and remove the power cord from the outlet.
• When moving the machine, be sure to turn the power switch off and remove the power cord from the outlet.
• Do not cover the machine with a dust cover, cloth or plastic film while the power is on. Doing so may prevent heat dissipation, damaging the machine.
• Do not make any modifications to this machine. Doing so may result in personal injury or damage to the machine.
• Do not make copies of anything which is prohibited from copying by law. The following items are normally prohibited from printing by national law. Other items may be prohibited by local law.
Money, Stamps, Bonds, Stocks
Bank drafts, Checks, Passports, Driver's licenses
• Do not touch the photoconductive drum. Scratches or smudges on the drum will cause dirty prints.
• Store spare toner cartridges in a cool dry place without removing from the package before use.
• If they are exposed to direct sunlight or excessive heat, poor copies may result.

2. Installation requirements

Improper installation may damage this product. Please note the following during initial installation and whenever the
machine is moved.

1. The machine should be installed near an accessible power outlet for easy connection.
2. Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements. Also make certain the outlet is properly grounded.

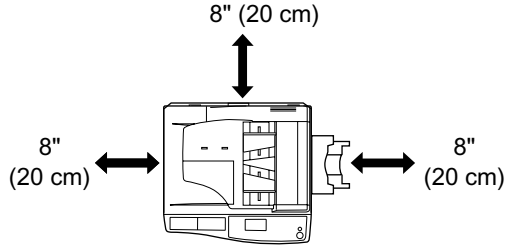
• For the power supply requirements, see the name plate on the back of the main unit.

Note: Connect the machine to a power outlet which is not used for other electric appliances. If a lighting fixture is connected to the same outlet, the light may flicker.

3. Do not install your machine in areas that are:

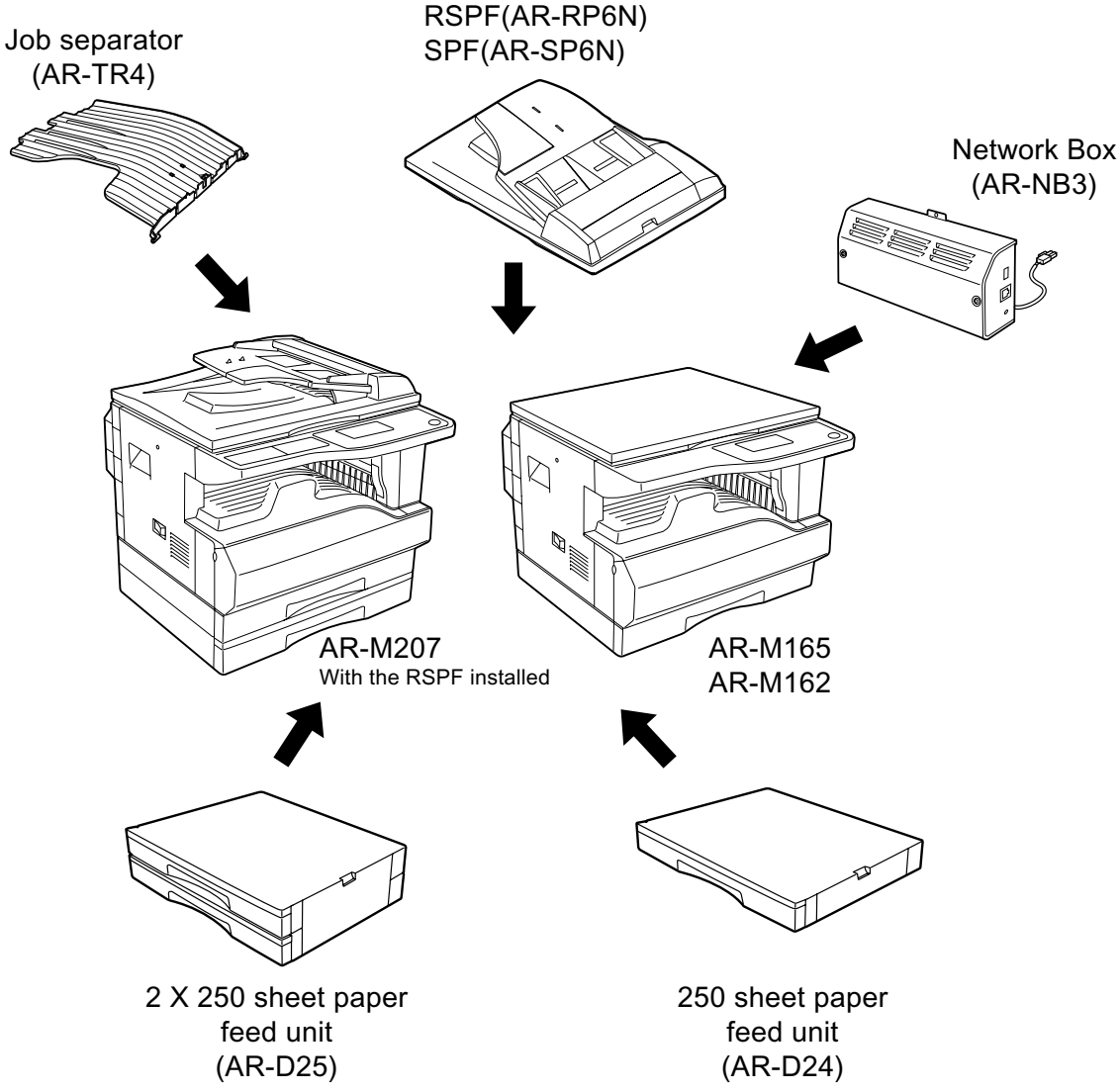
• damp, humid, or very dusty
• exposed to direct sunlight
• poorly ventilated
• subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.

4. Be sure to allow the required space around the machine for servicing and proper ventilation.



3. Configuration

A. System Configurations



OPTION \ MODEL		AR-M207	AR-M165	AR-M162	Remark
AR-RP6N	REVERSING SINGLE PASS FEEDER	OPT	OPT	NO	
AR-SP6N	SINGLE PASS FEEDER	OPT	OPT	OPT	
AR-VR5	DOCUMENT COVER	OPT	STD	STD	
AR-D24	250-SHEET PAPER FEED UNIT	OPT	OPT	OPT	
AR-D25	2 x 250-SHEET PAPER FEED UNIT	OPT	OPT	OPT	
AR-TR4	JOB SEPARATOR TRAY KIT	OPT	OPT	OPT	
AR-EB9	DUAL FUNCTION BOARD	STD*1	STD	STD*1	*1 Option for USA,CANADA.
AR-NB3	NETWORK PRINTING / SCANNING EXPANSION KIT	OPT	OPT	OPT	
AR-FX11	FACSIMILE EXPANSION KIT	OPT	OPT	OPT	
AR-SM5	EXPANSION MEMORY	OPT	OPT	OPT	
AR-MM9	FAX EXPANSION MEMORY	OPT	OPT	OPT	
AR-PF1	BARCODE-FONT KIT	OPT	OPT	OPT	The AR-NB3 is required
AR-PK1N	PS3 KIT	OPT	OPT	OPT	The AR-NB3 is required
AR-PF2	FLASH MEMORY KIT	OPT	OPT	OPT	The AR-NB3 is required

[2] SPECIFICATIONS

1. Basic Specification

A. Base Engine

(1) Type

AR-M207, AR-M162 / M165	Desk-top

(2) Engine speed

Paper size	AR-M207	AR-M162 / M165
A4/8.5" x 11"	20ppm	16ppm
A4R/8.5" x 11"R	14/15ppm	12ppm
A5/5.5" x 8.5"	20ppm	16ppm
B5/16K	20ppm	16ppm
B5R/16KR	16/15ppm	14ppm
8.5" x 13"	12ppm	11ppm
B4/8.5" x 14	12ppm	10ppm
A3/11" x 17"/8K	11/10/11ppm	9/9/10ppm

(3) Print performance

	AR-M207	AR-M162 / M165
GDI Print*	12ppm	12ppm
SPLC Print	20ppm(ROPM)	16ppm(ROPM)

* GDI print measurement conditions: Host PC/CPU = 500 700MHz or above, Windows 98SE, Data = TestChart-B1.doc, USB1.1, when supporting A4/Letter.
  Measurement method: With setting to 11, from completion of the first paper exit to completion of the 11th paper exit

(4) Copy speed(cpm)

	AR-M207			AR-M162 / M165		
	Normal	Reduction	Enlargement	Normal	Reduction	Enlargement
A4/8.5"x11"	20	20	20	16	16	16
A4R/ 8.5"x11"R	14/15	14/15	14/15	12	12	12
A5/5.5"x8.5"	20	20	20	16	16	16
B5/16K	20	20	20	16	16	16
B5R/16KR	16/15	16/15	16/15	14	14	14
8.5x13"	12	12	12	10	10	10
B4/8.5"x14	12	12	12	10	10	10
A3/11"x17"/ 8K	11/10/ 11	11/10/ 11	11/10/ 11	9/9/10	9/9/10	9/9/10

(5) First copy time

First copy time	7.2sec or less

* Measurement conditions: When feeding paper of A4/8.5" x 11" from the main unit tray, polygon rotation state

Main unit first stage	7.2sec or less
Main unit second stage	8.5sec or less
Option paper feed first stage	9.5sec or less
Option paper feed second stage	10.5sec or less
Manual tray	7.5sec or less

First copy time from the document feed unit

SPF	12sec or less
RSPF	12sec or less

(6) Job Speed

	AR-M207	AR-M162 / M165
S → S	20 Sheets/min(100%)	16 Sheets/min(100%)
S → D	9 Sheets/min(45%)	-
D → D	8 Sheets/min(40%)	-

* S → S(from No. 1 cassette): 10 sheets of A4/8.5" x 11" document, 5 copies
* S → D(from No. 1 cassette): 10 sheets of A4/8.5" x 11" document, 5 copies
* D → D(from No. 1 cassette): 10 sheets of A4/8.5" x 11" document(20 surfaces), 5 copies

(7) Continuous copying

Max. number of multi copy	1-999copies(Can be changed to 1-99 in key operator programs)

(8) Engine composition

Photoconductor type	OPC(Organic Photo Conductor)
Photoconductor drum dia.	30mm
Process cleaning	Blade
Copy lamp	Cold cathode fluorescent lamp(CCFL)
Developing system	Dry 2-component magnetic brush development
Charging system	Saw teeth charging
Transfer system	(+)DC scorotron
Separation system	(-)DC scorotron
Fusing system	Heat roller
Process speed	88mm/s

(9) Engine resolution

Resolution	Reading: 600 x 300dpi1(600 x 600dpi selectable) Writing: 600x600dpi
Gradation	Reading: 256 gradation, Writing: 2 gradations

(10)Scanner section

Scanner(Document table)

(11) Document table

Max. Document size	A3/11"x17"	
Scan area	297 x 431mm	
Document reference position	Left back corner reference	
Detection(Platen)	Available	
Detection size	Automatic detection(supported by each unit for inch/AB)	
	AB system:	A3, B4, A4, A4R, A5,
	Inch system:	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R
OR guide display	Left back corner (Print display)	Document reference position " ⇒ "
	Left side document guide	(From the back) [Postal card] · [A6] · [B6] · [5-1/2] · [A5] · [B5] · [A4/A5] · [8-1/2] · [B4/B5] · [11] · [A3/A4]
	Left side document guide	(From the left) [5-1/2] · [A5] · [B5] · [A4/A5] · [8-1/2] · [B5] · [11] · [A4] · [13] · [14] · [B4] · [A3] · [17]
	Back side document guide(Bookmark)	B5(Vertical), A4(Vertical), bookmark at 8" - 1/2" position(From the left)

AB and inch can be switched to each other by Sim.

(12) SPF/RSPF

Type	SPF/RSPF	Single/Duplex automatic document feeder unit
Scan speed	Single surface	When copying: 20-sheet model/20 sheets/min 16-sheet model/16 sheets/min When FAX: 23 sheets/min
Document reference position	Center	
Document size	AB system: A3-A5 Inch system: 11" x17" - 5.5" x 8.5"	
Document weight	56 - 90g/m²(15 - 24lbs) when duplex: 56 - 90g/m²(15 - 24lbs)	
Document load capacity	40 sheets(30 sheets of 90g/m² loadable)(30 sheets for B4/8.5" x 13" or above)40 sheets of 4mm thickness or below loadable	
Inhibited kinds of documents	Transparency film, Perforated sheets, photo, catalogue	
Detection	Avaiable	
Detection size *	Automatic detection(A kind of detection unit is used by switching the software destination.)	
	AB system:	A3,B4,A4,A4R,B5,B5R,A5
	Inch system:	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
Document tray guide display	Tray center(Marked)	Document insertion direction " → "document face-up set command
	Document guide(Marked)	(From the center) A3/A4, 11", B4/B5, 8.5", A4R/A5, B5R, A5R, 5.5"

(13) Operation panel

a. Display device

Type	LCD display with backlight
System	FSTN
Display dot number	119 x 73 dots
LCD drive display area	78.867 x 41.653 mm
LCD brightness adjustment	Available

Type	7 segment LED(x 3)

b. Key

Mode selection area	Copy mode key(mode LED) Print mode key(mode LED/ONLINE LED/DATA LED) Scanner mode key(mode LED) Fax mode key(mode LED/LINE LED/DATA LED)
Basic input section	Start key/LED Numeric keys * AUDIT CLEAR key # Read End key Clear/Stop key Interrupt key All Clear key
LCD display section	Exposure key(Color mode/Program) Paper key(Resolution/Program) Zoom key(Address) Auto% key(Format/Broadcast) Duplex key(Duplex scan) Sort(Document size) Special function key Fax status key Arrows key OK key Back key LINE STATUS indicator (when the fax option is installed)
Panel language support	English(Factory setting) For the languages other than English, the key sheet is packed together with the machine or manual kit. Attach it when installing.

c. Characters used in LCD

Kind	ROM font
Dot	6(W)x 12(H)

(14) Controller board

CPU	H8S2321(16bit 1-chip microprocessor, 19.6608MHz)
Memory	16MB(Single surface model) 32MB(Duplex surface model)

Interface

IEEE1284 Parallel	1 port
USB1.1	1 port
USB2.0	1 port(Standard/option area)
Ethernet	1 port(Network box)

(15) Paper feed section

Type	4-stage paper feed tray + multi manual paper feed
Paper feed system	Front loading, paper feed from the top

Main unit tray

Size to be fed	A3, B4, A4, A4R, B5, B5R, A5(No.1 tray only) 16K, 16KR, 8K, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"(No. 1 tray only)
Paper size setting	User setting
Paper size setting	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5" (For A5/5.5" x 8.5", however, No. 1 cassette only)
Paper size setting when shipping	AB system: A4 Inch system: 8.5" x 11"
Kind and weight of applicable paper	Standard paper 56 - 90g/m²
Paper feed capacity	Standard paper 250 sheets(64g/m²)
Paper type	Standard paper, Recycled paper
Remaining quantity detection	Only empty detection available

(16) Manual paper feed section

Manual paper feed form	Foldable manual paper feed tray	
Paper size	A3 - A6, 11" x 17" - 8.5" x 11"	
Manual paper feed guide display	A3/A4, B4/B5, A4R/A5, B5R, A5R, B6R, A6R	
Kind and weight of applicable paper	Standard paper Thick paper(56 - 200g/m²) Recycled paper, Envelope, Transparency film, Labels	
Paper capacity	Standard paper	100 Sheets (Standard paper: 56 - 80g/m²)(Multi paper feed: 56 -128g/m²)
	Envelope	AB system: 10 Sheets Inch system: 5 Sheets
	Other	Single paper feed(Transparency film, Labels, Postal card)
Paper kind	AB system: Standard paper/Recycled paper/ Transparency film/Labels/Postal card/Envelope/ Thick paper(-200g/m²) Inch system: Standard paper/Recycled paper/ Transparency film/Labels/Postal card/Envelope/ Thick paper(-200g/m²)	
Paper size detection	None	
Paper empty detection	Available	

(17) Duplex

Standard	20-sheet model: Standard provision 16-sheet model: Not available
Type	Switchback system
Paper size	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R
Kind and weight of applicable paper	Standard paper: 56 - 90 g/m²/15 - 24lbs Bond

(18) Paper exit section

Paper exit position/system	Face down
Paper exit section capacity	250 sheets
Paper exit paper size/kind	All feedable paper types and sizes
Paper exit paper full detection	Upper stage: Available(Detected when the job separator is installed) Lower stage: None *250 sheets of counted and detected.

(19) Exposure(Print density)

Density mode	Auto/Text/Photo
NO. Of manual adjustment	5 steps(Text/Photo)
Toner save mode	Available(Default OFF with the service simulation)

(20) Void width

Void area	Lead edge: 1 - 4mm, rear edge: 4mm or less, both sides: 6mm
Image loss	4mm or less

* For void area/image loss, normal/single copy.
* For the first sheet of manual paper feed, the rear edge void is disable.

(21) Warm-up

Warm-up time	45sec or less
Pre heat	Available
Jam recovery time	45sec or less Left for 60 sec after door open. Standard condition, polygon stop

(22) Copy magnification ratio

Fixed magnification ratio	AB system: 25, 50, 70, 81, 86, 100, 115, 122, 141, 200, 400% Inch system: 25, 50, 64, 77, 95, 100, 121, 129, 141, 200, 400%
Zooming	25-400%(SPF/RSPF: 50-200%)
Independent zooming	Vertical/horizontal: 25-400% (SPF/RSPF: 50-200%)

(23) Power source

Voltage	100V, 110V, 120V, 127V, 230V(200V), 240V
Frequency	50/60Hz
Power switch	One power source

(24) Power consumption

Max. Power consumption	1200W
Power consumption in operation	550W
Power consumption when standby	10W

* Must conform to energy saving laws, international standards, and company regulations.

(25) Environment support

Support program	International Energy-Star Nordic swan Canadian environment selection program Blue angel eco-label Green purchase network Green purchase law Energy-saving law Green products

(26) Noises

Noise level	Must conform to SS, blue angel, Nordic swan.

(27) Ozone & dust

Regulated value	Ozone: 0.02mg/m³ or less Dust: 0.075mg/m³ or less Styrene: 0.07mg/m³ or less

(28) External dimensions

1-stage cassette model(floor surface - glass surface)	590(W) x 595(D) x 435(H)
1-stage cassette model(floor surface - OC)	590(W) x 595(D) x 469(H)
1-stage cassette model(floor surface - SPF)	590(W) x 595(D) x 568(H)
2-stage cassette model(floor surface - glass surface)	590(W) x 595(D) x 520(H)
2-stage cassette model(floor surface - OC)	590(W) x 595(D) x 554(H)
2-stage cassette model(floor surface - SPF)	590(W) x 595(D) x 652(H)
3-stage cassette model(floor surface - glass surface)	590(W) x 595(D) x 605(H)
3-stage cassette model(floor surface - OC)	590(W) x 595(D) x 640(H)
3-stage cassette model(floor surface - SPF)	590(W) x 595(D) x 738(H)
4-stage cassette model(floor surface - glass surface)	590(W) x 595(D) x 690(H)
4-stage cassette model(floor surface - OC)	590(W) x 595(D) x 725(H)
4-stage cassette model(floor surface - SPF)	590(W) x 595(D) x 823(H)

(29) Occupying area

Main unit only (excluding the handle)	590(W) x 595(D)
Main unit(Multi manual feed open)	880(W) x 595(D)

(30) Weight

20-sheet model (Electronic sort : Standard)	34.2 (Kg)
20-sheet model (Electronic sort : Option)	33.8 (Kg)
16-sheet model (Electronic sort/Duplex)	30.6 (Kg)
16-sheet model (Electronic sort : Standard)	30.0 (Kg)
16-sheet model (Electronic sort : Option)	29.7 (Kg)

(31) Printer basics

GDI/SPLC Print

Print speed	GDI: 12PPM(GDI Print, USB2.0(Full speed), A4/Letter) Measurement conditions: Host PC/CPU: 500 700MHz, RAM: 256MB or above, Windows98SE Data Testchart-B1, dot SPLC: According to the main machine speed.
First Print	7.2sec or less
Resolution	600dpi
Duplex print	Available
Paper feed system	Paper feed tray and multi paper feed
Shifter	Installed to the main unit paper exit section. Shift amount: 1 inch(25.4mm)journalizing according to every print job.
Supported OS	Windows95/98/Me/NT4.0(Workstation SP5 or later)/2000(Professional)/XP(Home/Professional)
Emulation	GDI SPLC(JBIG-GDI): When the Dual function board (AR-EB9) is installed (Standard or option).
Interface	IEEE1284(ECP, Compatible) USB1.1 USB2.0(When the Dual function board (AR-EB9) is installed (Standard or option).
PnP Support	Windows 95/98/Me/2000/XP
Software	Status Window
ROPM	When the Dual function board (AR-EB9) is installed (Standard or option).
WHQL	Yes(XP/2000) after a few month later from first lot.

(32) Scanner basics

Type	Flat bed color scanner
Scan system	Document table/document feed unit
Light source	White CCFL
Resolution	Basic 600 x 600 dpi Set range: 50 - 9600dpi
Document	Sheet/Book
Effective scan range	OC/SPF/RSPF: about 297(length)x 431(width)mm
Scan speed	2.88msec/Line(Color)
Input data	1bit or 12bit
Output data	1bit or 8bit
Scan color	Black and white binary/Gray scale/Full color
Protocol	TWAIN/WIA(XP Only)/STI
Interface	USB1.1 USB2.0
Scanner utility	Sharpdesk
Drop-out color	Provided
Scanner button	Destination selection by LCD
Duplex scan	Available
Supported OS	Windows98/Me/2000(Professional)/XP(Home/Professional)
Void area	Lead edge/rear edge: 2.5mm Side Left/right: 3.0mm
WHQL	Yes(XP/2000) after a few month later from first lot.

(33) Network box basics

Standard memory	64MB
Expansion memory	1DIMM 1 slot 144pin 128/256MB SO-DIMM
Interface	RJ45, USB port(for connection with the main unit)
LED	Power LED, 10/100BASE-Tx mode LED, LAN status LED, USB status LED
Switch	Status Switch
Supported OS	Windows 95/98/Me/NT4.0(Workstation SP5 or later)/2000 professional/XP Home Edition/XP Professional Edition/Windows Sever 2003 Mac OS 8.6 - 9.2.2, 10.1.5, 10.2 - 10.2.8 (excluding 10.2.2), 10.3 - 10.3.4 (when PS option)
Setting software	Internet Explorer 5.5 or later, Netscape Navigator 6 or later
Expansion option	PS expansion kit(AR-PK1N) Barcode font kit(AR-PF1) Flash ROM kit(AR-PF2) Sharpdesk(Sharp desk license kit AR-U series)
Network protocol	TCP/IP, IPX/SPX(NetWare), NetBEUI, Ether Talk(Apple Talk)
Emulation	PCL/PS(PS is cancelled by the soft key.) ESC/P Font Kanji: Mincho, Gothic(Bitmap) ANK: Roman, Sans Serif(Bitmap)
E-RIC	Canceled by the soft key.

B. Peripheral devices basic specifications

(1) Single pass feeder(SPF)

Document set	Face up	
Document reference position	Right side center	
Document transport system	Sheet through type	
Document feed direction	Document feed from the top	
Document size	AB system: A3 - A5 Inch system: 11" x 17" - 5.5" x 8.5"	
Document weight	56 - 90g/m²(15 - 24lbs)	
Document set quantity	40 sheets(40 sheets of 4mm thickness or less can be loaded.) (30 sheets of 90g/m² can be loaded. 30 sheets for B4 or 8.5" x 13" or above.)	
External dimensions	583 mm(W) x 435 mm(D) x 133 mm(H)	
Weight	5.0kg	
Power	Supplied from the machine(Power consumption: 21W)	
Document size detection	On the document feed trey	
Detection size	AB system	A3, B4, A4, A4R, B5, B5R, A5
	Inch system	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
Guide display	(From the center) A3/A4, 11", B4/B5, 8.5", A4R/A5, B5R, A5R, 5.5"	
Documents out of specifications	Transparency film/Perforated document, photo, catalogue	
Multi copy	S-S, S-D(Duplex model)	
Document mixture	Not available	
Random paper feed	Not available	
Document reversion	Not available	
Display section(LED)	None	
Reliability(MCBJ/MCBF)	Conforms to the main unit.	
Document replacement speed(Standard copy)	S-S	16-sheet model: 100% 20-sheet model: 100%
	S-D	20-sheet model: 45%(9 sheets/min)
	D-D	-
Item included	Installation manual	
Case color	Frosty white	
Installation	Must be installed easily.	

(2) Reversing single pass feeder(RSPF)

Document set	Face up	
Document reference position	Right side center	
Document transport system	Sheet through type	
Document feed direction	Document feed from the top	
Document size	AB system: A3 - A5 Inch system: 11" x 17" - 5.5"x8.5"	
Document weight	56 - 90g/m²(15 - 24lbs) Duplex: 56 - 90g/m²(15 - 24lbs)	
Document set quantity	40 sheets(40 sheets of 4mm thickness or less can be loaded.) (30 sheets of 90g/m² can be loaded. 30 sheets for B4 or 8.5" x 13" or above.)	
External dimensions	583 mm(W) x 435 mm(D) x 133 mm(H)	
Weight	5.4kg	
Power	Supplied from the machine(Power consumption: 26.4W)	
Document size detection	On the document feed trey	
Detection size	AB system	A3, B4, A4, A4R, B5, B5R, A5
	Inch system	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
Guide display	(From the center) A3/A4, 11", B4/B5, 8.5", A4R/A5, B5R, A5R, 5.5"	
Documents out of specifications	Transparency film, Perforated document, photo, catalogue	
Multi copy	S-S, S-D, D-D, D-S(Duplex model)	
Document mixture	Not available	
Random paper feed	Not available	
Document reversion	Available(Not available for 5.5" x 8.5" and 5.5" x 8.5"R)	
Display section(LED)	None	
Reliability(MCBJ/MCBF)	Conforms to the main unit	
Document replacement speed(Standard copy)	S-S	16-sheet model: 100% 20-sheet model: 100%
	S-D	20-sheet model: 45%(9 sheets/min)
	D-D	20-sheet model: 40%(8 sheets/min)
Item included	Installation manual	
Case color	Frosty white	
Installation	Must be installed easily	

(3) 1-stage paper feed unit

Paper feed capacity	250 Sheets
Paper size detection	Not available(The paper size can be set with the function menu.)
Paper empty detection	Available
Paper size	A3, B4, A4, A4R, B5, B5R, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 16K, 16KR, 8K
Paper weight	56 - 90g/m²(15 - 24lbs)
Factory setting size	AB system: A4 Inch system: 8.5" x 11"
Size selection	A3, B4, A4, A4R, B5, B5R,11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R
Cassette installation/ removal	Can be made by the user
Power	Supplied from the machine(Power consumption: 5.6W)
External dimensions	590 mm(W) x 471 mm(D) x 88mm(H)
Weight	5.0Kg
Reliability(MCBJ/ MCBF)	Conforms to the main unit
Item included	Installation manual, Paper size label
Case color	Frosty white

(4) 2-stage paper feed unit

Paper feed capacity	250 Sheets x 2
Paper size detection	Not available(The paper size can be set with the function menu.)
Paper empty detection	Available
Paper size	A3, B4, A4, A4R, B5, B5R, 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 16K, 16KR, 8K
Paper weight	56 - 90g/m²(15 - 24lbs)
Factory setting size	AB system: A4 Inch system: 8.5" x 11"
Size selection	A3, B4, A4, A4R, B5, B5R 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R
Cassette installation/ removal	Can be made by the user
Power	Supplied from the machine(Power consumption: 8.4W)
External dimensions	590 mm(W) x 471 mm(D) x 174 mm(H)
Weight	10.0Kg
Reliability(MCBJ/ MCBF)	Conforms to the main unit
Item included	Installation manual, Paper size label
Case color	Frosty white

(5) Dual function board

Expansion function	Electronic sort function, 2In1/4In1, Rotation copy, Edge erase/Center erase, Margin shift, Card shot USB2.0(High-speed support),SPLC print(JBIG-GDI), ROPM function
Electronic sort compress function	JBIG
Memory for electronic sort	16MB
Electronic sort scan quantity	A4 standard document(Test chart B)100 sheets
Memory expansion	DIMM Memory slot x 1 Max. 256MB x 1slot + 16MB(Max 272MB in total) (Externally described as max. 256MB x 1)
Item included	Installation manual,

(6) Original cover(OC)

Function	Up/down open/close mechanism
Item included	Installation manual

(7) 256MB expansion memory

Memory	256MB
Item included	Installation manual

(8) Job separator

Installation conditions	Install when the printer or the FAX is expanded. Performs paper exit for every job
Bin number	1 bin
Distribution system	Controlled by the main unit.
Paper size	Conforms to the main unit paper feed paper.
Paper weight	Conforms to the main unit paper feed paper.
Paper exit section capacity	Upper stage: 100 Sheets Lower stage: 150 Sheets
Paper exit job	Upper stage: FAX output or printer output Lower stage: Copy output or printer output
Paper exit full detection	Upper stage: Available Lower stage: YES (Full detection by the counter)
Power	None
Item included	Installation manual
Case color	Frosty white
Installation	Must be installed easily

(9) Network box

Function	Supports the network printer(PCL/PS)and the network scanner.
Power	Supplied from the machine (Power consumption: 5.5W)
External dimensions	248 mm(W) x 127 mm(D) x 59 mm(H)
Item included	USB2.0code x 1 Software CD(Driver/Network setting/application) Installation manual

(10) Facsimile expansion kit

Function	FAX expansion option
Item included	One-touch dial key, destination label, installation manual

(11) Barcode font kit

Same as the AR-PF1.

(12) Flash memory kit

Same as the AR-PF2.

(13) PS3 expansion kit

Same as the AR-PK1N.

(14) Facsimile expansion memory

Same as the AR-MM9.

C. Various functions specifications

(1) Copy function specification

Function/ Special function	Automatic paper selection	Yes
	Automatic magnification ration selection	Yes
	Auto tray switching	Yes
	Memory copy	Yes
	Rotation copy	Yes (When electronic sort)
	Electronic sort	Yes (Standard or option)
	Rotation sort	No
	X Y zoom	Yes
	Dual page copy	Yes (Enlargement invalid/SPF invalid(Patent rotation)
	Sort function	Yes (Standard or option) 100 sheets of A4 standard document (Test Chart B)are sorted.
	Margin shift	Yes (When electronic sort) Default AB system: 10mm(5, 10, 15, 20mm) Inch system: 1/2 Inch(1/4, 1/2, 3/4, 1 Inch)
	Edge erase	Yes (When electronic sort) Default AB system: 10mm(5, 10, 15, 20mm)Inch system: 1/2 Inch(1/4, 1/2, 3/4, 1 Inch)
	Center erase	Yes (When electronic sort) Default AB system: 10mm(5, 10, 15, 20mm) Inch system: 1/2 Inch(1/4, 1/2, 3/4, 1 Inch)
	Black/white reverse	No
	2in1/4in1	Yes (When electronic sort)
	Sorter	Yes (Offset function)
	Card shot	Yes (When electronic sort)
	Preheating	Yes (Set by the key operator program.)
	Auto shut-off	Yes (Set by the key operator program.)
	Total counter	Yes
	Duplex	Yes (Standard provision for the model of 20-sheet model only)
	Toner save	Yes (Set according to the destination) (No setting. * Default OFF with the service simulation.)
	Department management	Yes (Copy/printer/scanner: 50 Dept, Fax 50 dept)

(2) Printer function specification

a. GDI/SPLC Printer

<Summary>

Platform	IBM PC/AT(Include compatible machine)	
Supported OS	IEEE1284	Windows95/98/Me/ NT4.0(Workstation SP5)/ 2000(Professional)/XP(Home/ Professional)
	USB1.1	Windows98/Me/ 2000(Professional)/XP(Home/ Professional)
	USB2.0	Windows2000(Professional)/ XP(Home/Professional)
Emulation	GDI/JBIG GDI	
Memory	Environments for full operations of the above OS	

<GDI/SPLC Printer function>

Only the summary is described on this item.

Function			Content
Main	Copies	1-999	Makes prints of the set number of copies.
	Collate	Collate Uncollate	When this item is set to "Collate," prints of two or more copies are collated. When set to "Uncollated," two or more copies of each page are printed(uncollated).
	Document Style	1-sided 2-sided(Book) 2-sided(Tablet)	Single face or double face print is made according to the setting. When set to duplex, the printing direction differs depending on book or tablet.
	N-up *1	2/4	The set pages are printed on one sheet.
	N-up Order	Z	
	N-up Border	Yes/No	Border lines are printed between pages printed on one sheet.
	Duplex	1-sided 2-sided(Book) 2-sided(Tablet)	
Paper	Paper Size	A3/B4/A4/B5/ A5/A6/B6/ Ledger/Legal/ Foolscap/ Folio/Letter/ Invoice/ Executive/8K/ 16K/COM-10/ DL/C5/ Custom/Postal card	Print is made in the set paper size. Even when the actual paper size differs from the set paper size, images are formed printed in the set paper size.
	Custom Paper Size *2	1 size	Width: 100 - 297mm Length: 148-431.8mm
	Fit to Page	Yes/No	The print size is changed according to the set content.
	Image Orientation	Portrait Landscape	Printing is made in the set direction.
	Paper Selection	Auto Bypass Tray 1/2(3/4)	Paper is fed from the set paper feed tray.
	Rotate 180 Degree	Yes/No	Data are rotated 180 degrees and printed.

Function			Content
Paper	Output Tray Selection	Upper Tray Center Tray	When the job separator is installed, selection is made between the upper stage and the center stage of the paper exit tray.
Advanced	Print Quality	Draft Normal Photo	Draft/Normal (only for Windows 9x, Me)
	Image Adjustment	Yes/No	Contrast and brightness of images are adjusted. For Windows NT4.0/2000/XP, enable only for the Photo mode of Print Quality.
	Brightness	0 - 100%	The image brightness is adjusted by moving the scale from 0 to 100. The illustration image on the left upper corner of the display is changed.
	Contrast	0 - 100%	The image contrast is adjusted by moving the scale from 0 to 100. The illustration image on the left upper corner of the display is changed.
	Pured Black print	Yes/No	A document made by a CAD program is printed in black to provide clear print of color line images and texts.
Water-marks	Watermarks	None/TOP SECRET/ CONFIDENTIAL/DRAFT/ ORIGINAL/ COPY	
	User Setting	Add/Update/ Delete	
	Position	Center X: ± 50 Y : ± 50	
	Size	6 - 300	
	Angle	± 90	
	Grayscale	0 - 255	
	Edit Font	Yes	
	On First Page only	Yes/No	

(3) Scanner function Specification

a. PUSH Scan(USB)

Supported OS	Win98/Me/2000/XP
Hardware environment	(System)Must meet the operating conditions of each OS. (HDD)8MB or above: 100MB or above recommendable (Monitor)800 x 600 dots or above, 256 colors or more must be displayed. (Other)USB port(1.1 or 2.0)
Selectable destination	SharpDesk/E-mail software/Fax software/OCR software/MS Word

b. PULL Scan(TWAIN)

	USB TWAIN
Supported OS	Win98/Me/2000/XP
Hardware environment	(System)Must meet the operating conditions of each OS. (HDD)8MB or above: 100MB or above recommendable (Monitor)800 x 600 dots or above, 256 colors or more must be displayed.
	(Other)USB port
Duplex scan	Yes
Color mode	Black and white(Simple binary)/Black and white(Error diffusion)/Gray scale/Full color
Resolution	Pull: 600 x 600dpi Emulation: 50-9600dpi Custom: 50-9600dpi
Preview function	Yes
Zoom preview function	Yes
Rotation scan	Yes (90 degrees/180 degrees/270 degrees)
Brightness/ contrast adjustment	Auto/Manual(-100 - +100)
Gamma adjustment	Yes
Color matching	None/Printer/CRT/LCD display/ICM
Edge emphasis	None/Normal/Strong/Blur
Black/white reverse	Yes
Light source selection	Yes (Red/Green/Blue/White)
Threshold value setting	Auto/Manual(1 - 254)
Void area addition	Available(Top/End edge = 2.5mm /Left/Right = 3.0mm)
Set contents save	Yes

c. Network Push scan(When the network box is installed)

Selectable destination	Scan to E-mail/FTP/Desktop
Destination selection method	Address book LDAP retrieval/selection Ad-Hoc(10-key input)

[3] CONSUMABLE PARTS

1. Supply system table

A. USA / CANADA

NO	Name	Content		Life	Product name	Remark
1	Toner cartridge(Black) <With IC>	Toner (Toner: Net Weight 537g) Vinyl bag	x10 x10	160K	AR-202MT	Life setting by A4 6% document
2	Developer	Developer (Developer : Net Weight 400g)	x10	500K	AR-202MD	
3	Drum kit	Drum Drum fixing plate	x1 x1	50K	AR-202DR	

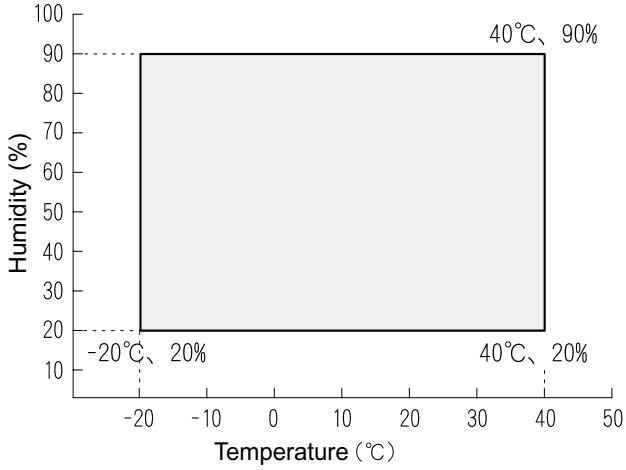
B. Europe / Australia / New Zealand

NO	Name	Content		Life	Product name	Remark
1	Toner cartridge(Black) <With IC>	Toner (Toner: Net Weight 537g) Vinyl bag	x10 x10	160K	AR-202LT	Life setting by A4 6% document
2	Developer	Developer (Developer : Net Weight 400g)	x10	500K	AR-202LD	
3	Drum kit	Drum Drum fixing plate	x1 x1	50K	AR-202DM	

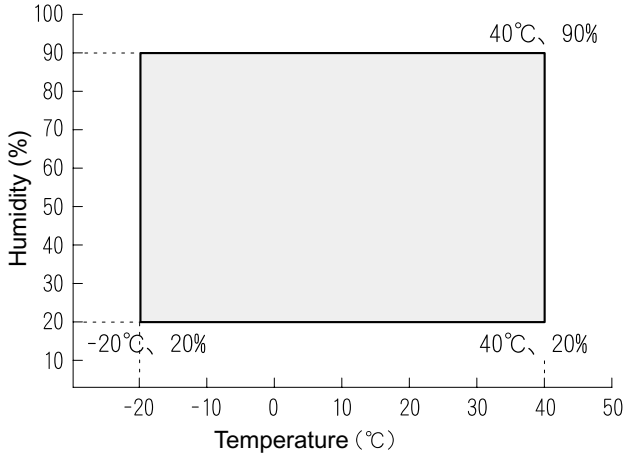
2. Environmental conditions

A. Transport conditions

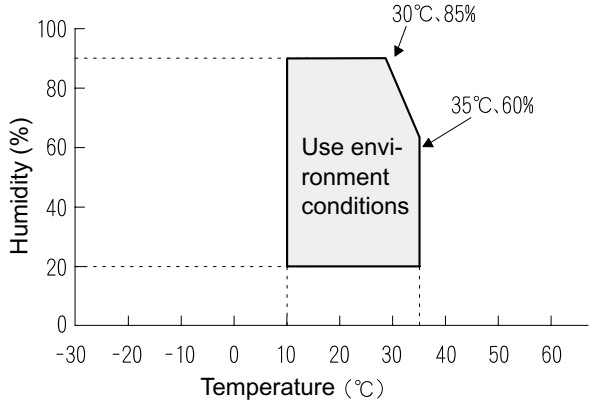
(1) Transport conditions



(2) Storage conditions



B. Use conditions



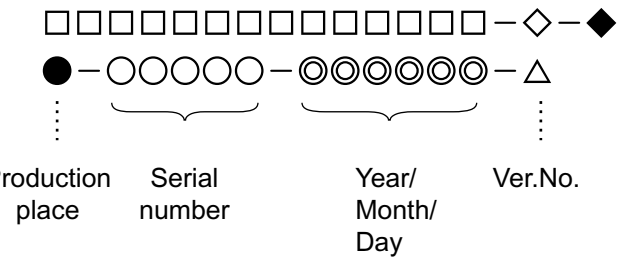
C. Life(packed conditions)

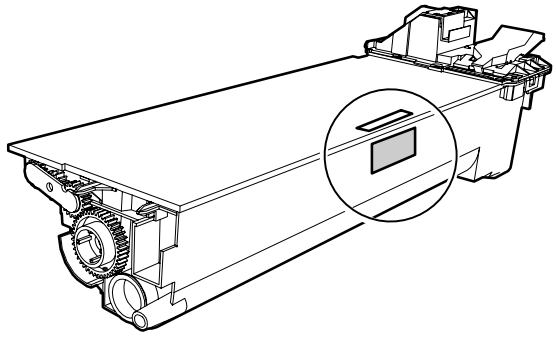
Photoconductor drum (36 months from the production month)
Developer, toner (24 months from the production month)

3. Production number identification

<Toner cartridge>

The label on the toner cartridge shows the date of production.



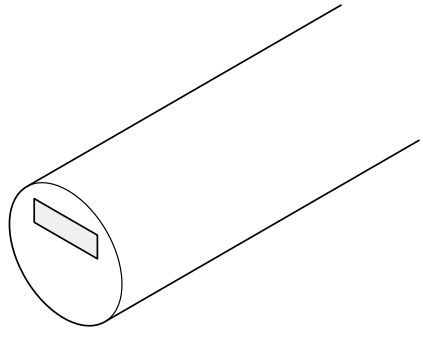


<Drum cartridge>

The lot number, printed on the front side flange, is composed of 6 digits, each digit showing the following content:

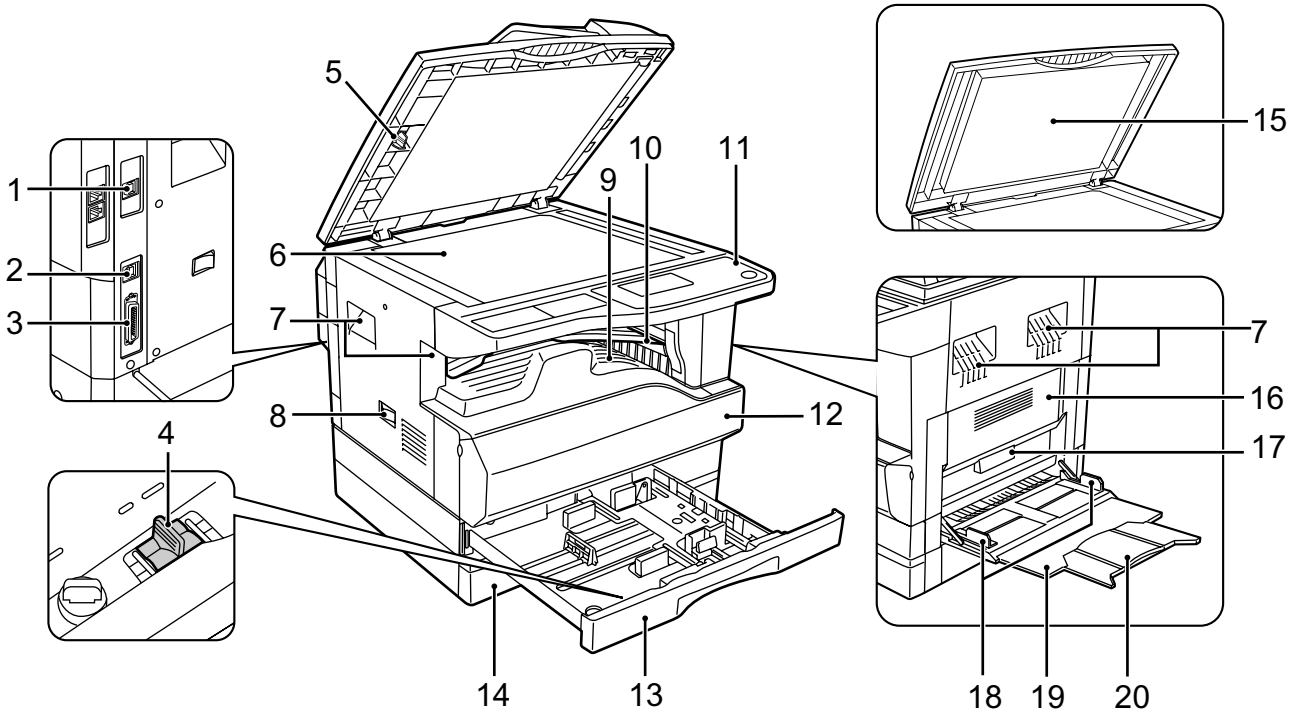
1	2	3	4	5	6

1	Alphabet Indicates the model conformity code. A for this model.
2	Number Indicates the end digit of the production year.
3	Number or X, Y, Z Indicates the month of packing. X stands for October, Y November, and Z December.
4/5	Number Indicates the day of the month of packing.
6	Alphabet Indicates the production factory. "A" for Nara Plant, “C“ for SOCC



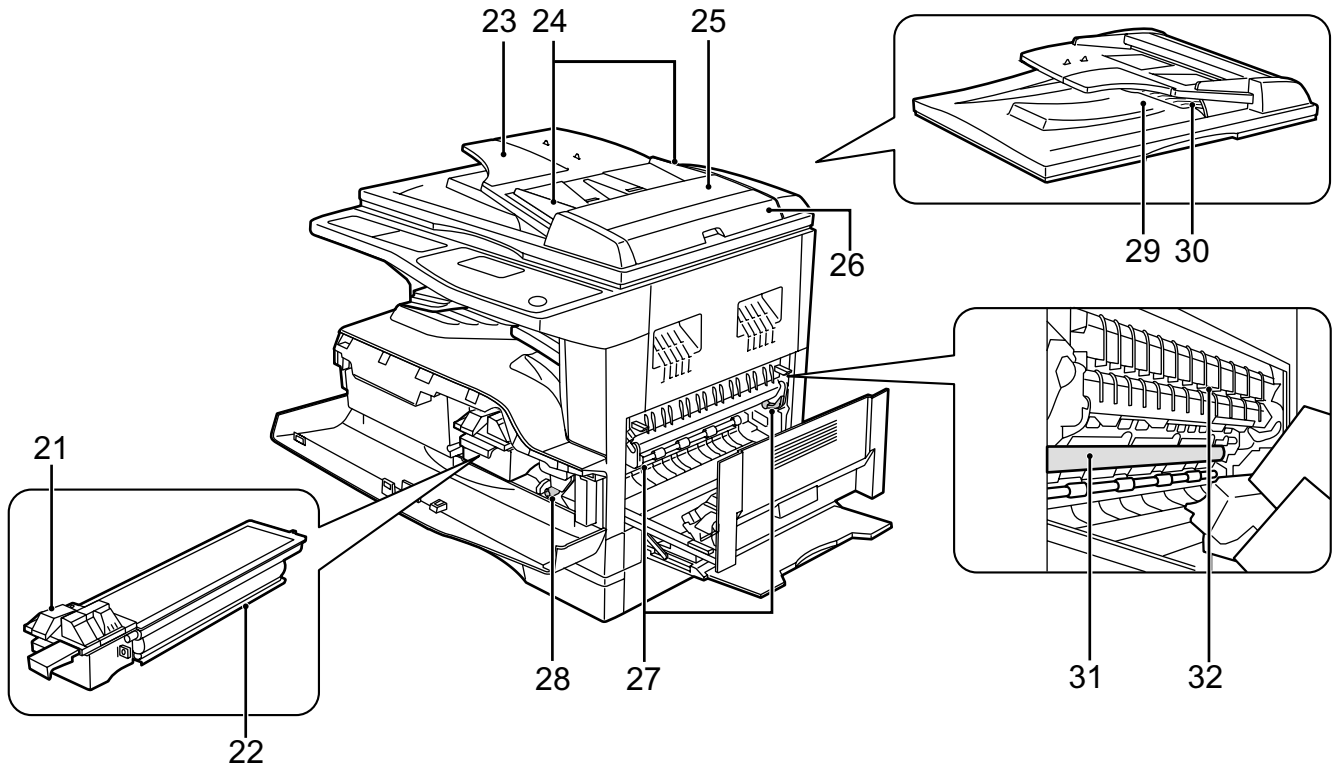
[4] EXTERNAL VIEWS AND INTERNAL STRUCTURES

1. Appearance



1	USB 2.0 port (USB-2) (when the dual function board is installed)	Connect to your computer to this port to use the printer and scanner functions.
2	USB 1.1 port (USB-1)	Connect to your computer to this port to use the printer and scanner functions.
3	Parallel port	Connect to your computer to this port to use the printer function.
4	Charger cleaner	Use to clean the transfer charger.
5	Glass cleaner	Use to clean the original scanning glass.
6	Document glass	Place an original that you wish to scan face down here.
7	Handles	Use to move the machine.
8	Power switch	Press to turn the machine power on and off.
9	Center tray	Copies and printed pages are output to this tray.
10	Upper tray (when the job separator tray kit is installed)	Received faxes (when the fax option is installed) and print jobs are delivered to this tray.
11	Operation panel	Contains operation keys and indicator lights.
12	Front cover	Open to remove paper misfeeds or replace the toner cartridge.
13	Tray 1	Tray 1 can hold approximately 250 sheets of copy paper (64 g/m^2).
14	Tray 2	Tray 2 can hold approximately 250 sheets of copy paper (64 g/m^2).
15	Document cover (when installed)	Open to make a copy from the document glass.
16	Side cover	Open to remove misfed paper.
17	Side cover handle	Pull to open the side cover.
18	Bypass tray guides	Adjust to the width of the paper when using the bypass tray.
19	Bypass tray	Special paper (heavy paper or transparency film) can be fed from the bypass tray.
20	Bypass tray extension	Pull out when feeding large paper such as 11" x 17" and 8-1/2" x 14" (A3 and B4).

2. Internal



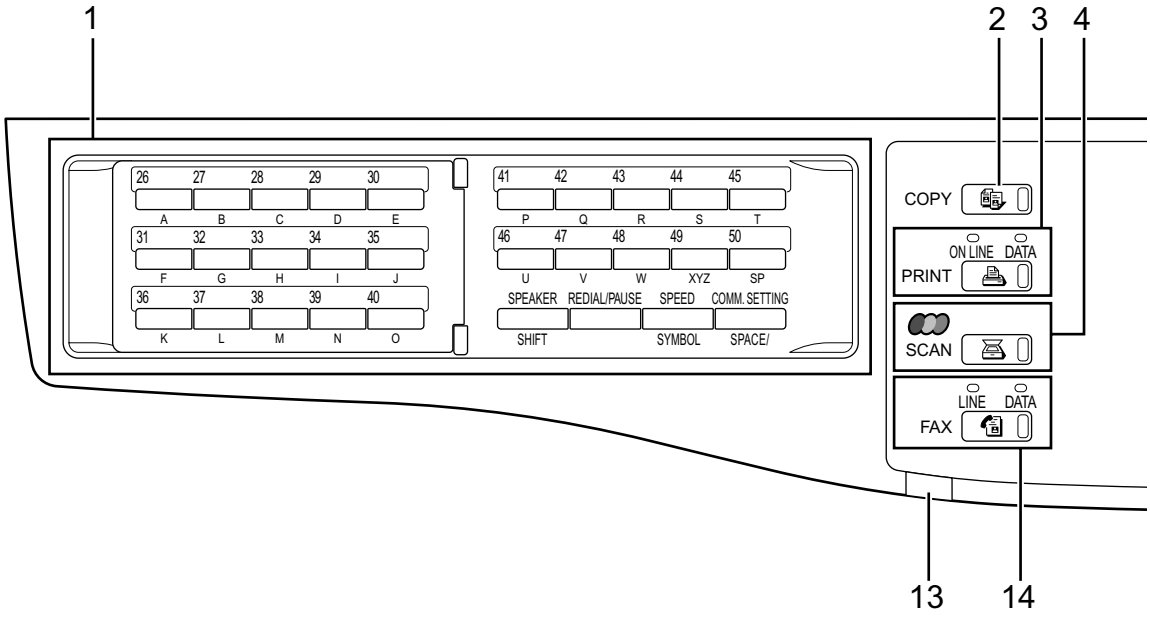
21	Toner cartridge lock release lever	To replace the toner cartridge, pull out the toner cartridge while pushing on this lever.
22	Toner cartridge	Contains toner.
23	Document feeder tray (when the SPF is installed)	Place the original(s) that you wish to scan face up here. Up to 40 sheets can be placed.
24	Original guides (when the SPF is installed)	Adjust to the size of the originals.
25	Feeding roller cover (when the SPF is installed)	Open to remove misfed originals.
26	Right side cover (when the SPF is installed)	Open to remove misfed originals.
27	Fusing unit release levers	To remove the paper misfed in the fusing unit, push down on these levers and remove the paper.
28	Roller rotating knob	Rotate to remove misfed paper.
29	Exit area (when the SPF is installed)	Originals exit the machine here after copying/scanning when the SPF is used.
30	Reversing tray (when the RSPF is installed)	Pull out to remove misfed originals.
31	Photoconductive drum	Images are formed on the photoconductive drum.
32	Fusing unit paper guide	Open to remove misfed paper.

Warning: The fusing unit is hot. Do not touch the fusing unit when removing misfed paper. Doing so may cause a burn or injury.

Caution: Do not touch the photoconductive drum (green portion) when removing the misfed paper. Doing so may damage the drum and cause smudges on copies.

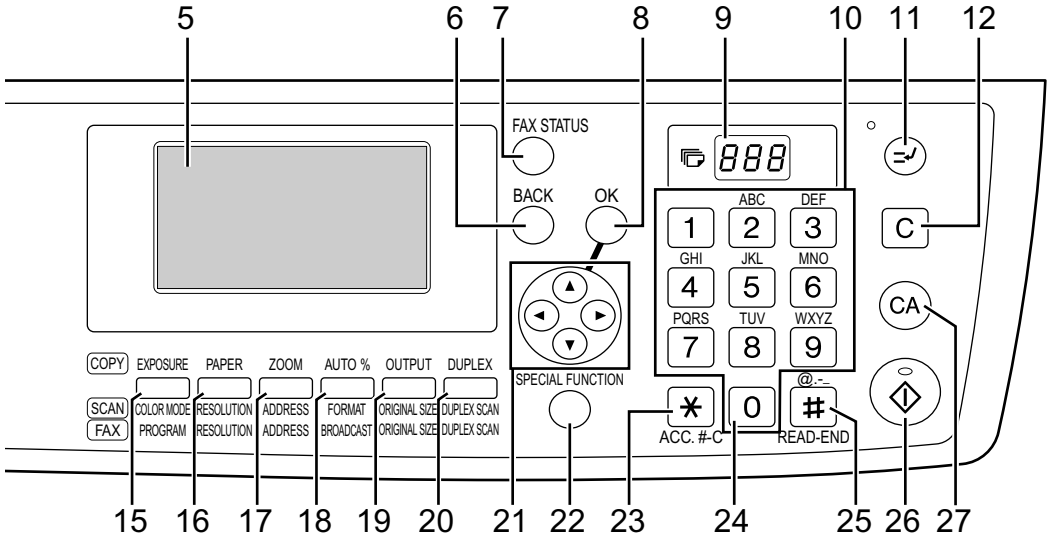
Note: The model name is on the front cover of the machine.

3. Operation panel

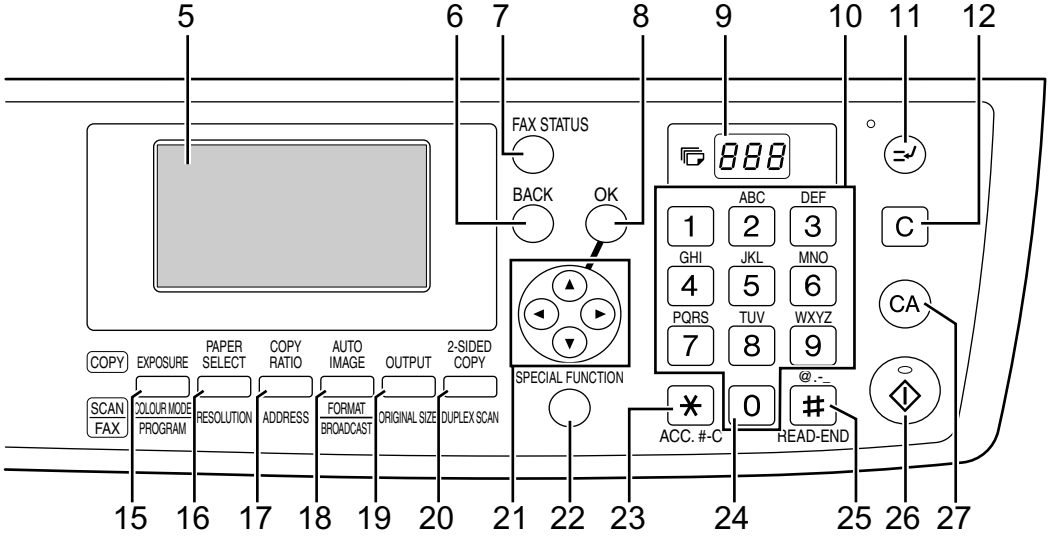


1	Keys for fax function (when the fax option is installed)	These are used in fax mode.
2	[COPY] key/indicator	Press to select copy mode. If pressed when "Ready to copy." appears or during warm-up, the total number of sheets used appears while the key is pressed.
3	[PRINT] key/indicator	Press to select print mode. • ONLINE indicator Print jobs can be received when this indicator is lit. • DATA indicator This lights steadily when there is a print job in memory that has not been printed, and blinks during printing.
4	[SCAN] key/indicator	Press to select scan mode.
5	Display	Shows various messages. For more information see page 5-5.
6	[BACK] key	Press to return the display to the previous screen.
7	[FAX STATUS] key	This key is used in fax mode.
8	[OK] key	Press to enter the selected setting.
9	Copy number display	The selected number of copies appears. During copying, this shows the remaining number of copies.
10	Numeric keys	Use to select the number of copies.
11	[INTERRUPT] key/INTERRUPT indicator	Interrupts a copy run to allow an interrupt copy job to be performed.
12	[C] key	Press to clear the set number of copies or stop a copy run.
13	Information lamp (when the fax option is installed)	Information lamp blinks, when facsimile is received, or when the paper remains in the tray.
14	[FAX] key/indicator (when the fax option is installed) LINE indicator, DATA indicator	This key is used in fax mode.

For U.S.A.



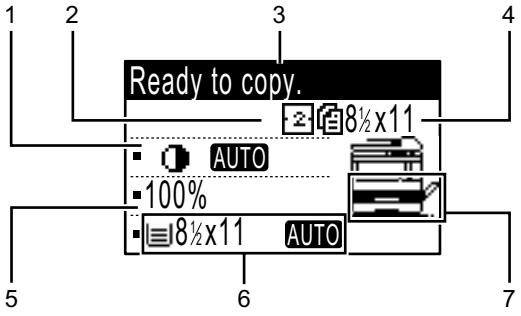
For other country



15	[EXPOSURE] key	Use to select the exposure mode. "AUTO", "TEXT", or "PHOTO" can be selected.
16	[PAPER] key (PAPER SELECT key)	Use to manually select a paper tray.
17	[ZOOM] key (COPY RATIO key)	Press to select a reduction or enlargement copy ratio.
18	[AUTO%] key (AUTO IMAGE key)	Press to have the copy ratio selected automatically.
19	[SORT] key (Only effective when the dual function board is installed)	Use to select the sort function.
20	[DUPLEX] key (2-SIDED COPY key) (only on models that support two-sided printing)	Select the two-sided copying mode.
21	Arrow keys	Press to move the highlighting (which indicates that an item is selected) in the display.
22	[SPECIAL FUNCTION] key	Press to select special functions.
23	[ACC.#-C] key	Press the end the use of an account and return the display to the account number entry screen.
24	[0] key	Press during a continuous copy run to display the number of copies completed.
25	[READ-END] key	When copying in sort mode from the document glass, press this key when you have finished scanning the original pages and are ready to start copying.
26	[START] key/indicator	Copying is possible when this indicator is on. Press the key to start copying.
27	[CA] key	Clears all selected settings and returns the machine to the default settings.

4. Display(base screen)

Example: Copy mode



* The display shown is the AR-M207 (when the optional RSPF is installed) display.

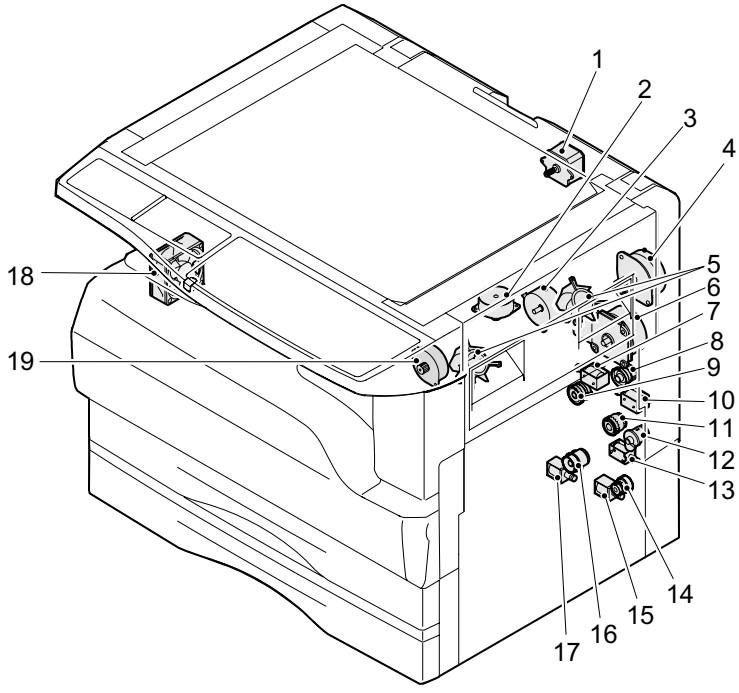
Icons appearing in the special function icon display

1▶2	1-sided to 2-sided copy		Center erase copy*
2▶2	2-sided to 2-sided copy		Edge + Center erase*
2▶1	2-sided to 1-sided copy		2 in 1 copy*
	Sort function*		4 in 1 copy*
	Margin shift copy*		Dual page copy
	Erase copy*		Card shot*

* These only appear when the dual function board is installed.

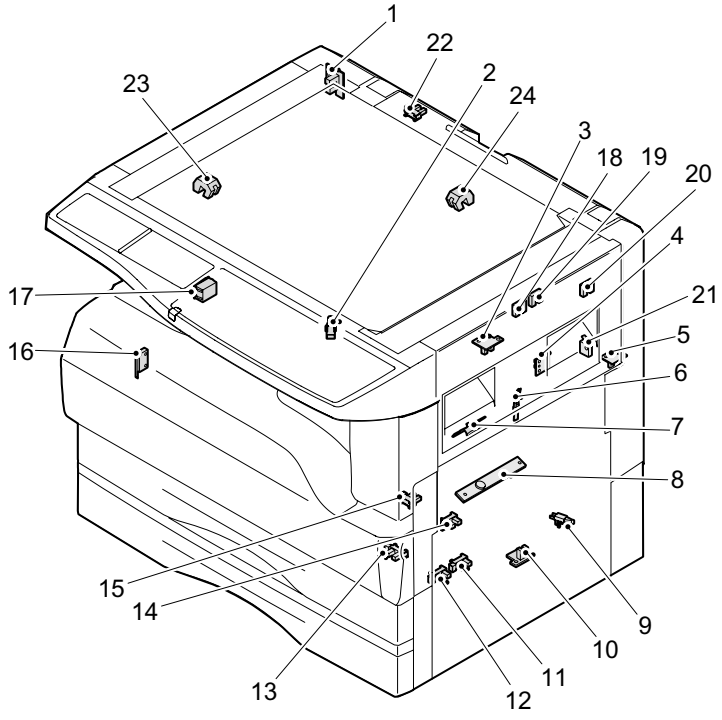
1	Exposure display	Indicates the selected exposure mode.
2	Special function icon display	Icons of enabled special functions will appear.
3	Message display	Messages are displayed regarding machine status and operation.
4	Original size display	The size of the placed original and the icon of the original scanning mode will appear. : One-sided scanning in the SPF. : Scanning on the document glass : Two-sided scanning in the RSPF.
5	Copy ratio display	Displays the copy ratio for reduction or enlargement.
6	Paper size display	Displays the selected paper size. When "AUTO" appears, the most suitable size of paper is automatically selected.
7	Paper tray display	The selected paper tray is highlighted.

5. Motor, solenoid, clutch



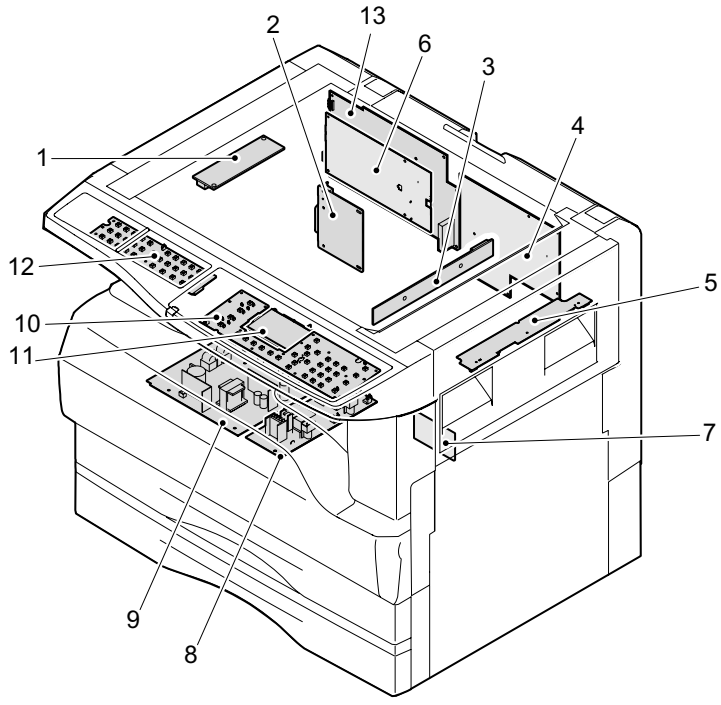
No.	Name	Code	Function operation
1	Mirror motor	MRM	Drives the optical mirror base (scanner unit).
2	Shifter motor	SHTM	Shifts the paper exit tray.
3	Toner motor	TM	Toner supply
4	Duplex motor	DPX	Switchback operation and paper exit motor in duplex.
5	Cooling fan motor	CFM	Cools the inside of the machine.
6	Main motor	MM	Drives the machine.
7	1st tray paper feed clutch	CPFC1	Drive the pick up roller
8	PS clutch	RRC	Drives the resist roller
9	Paper feed solenoid	CPSOL1	Solenoid for paper feed from cassette
10	Resist roller solenoid	RRS	Resist roller rotation control solenoid
11	Manual paper transport clutch	MPTC	Drives the manual paper transport roller.
12	Manual paper feed clutch	MPFC	Drives the manual paper feed roller.
13	Manual paper feed solenoid	MPFS	Manual paper feed solenoid
14	2nd tray transport clutch	CPFC2	Drives the 2nd tray transport roller.
15	2nd tray transport solenoid	FSOL1	2nd tray transport solenoid
16	2nd tray paper feed clutch	CPFC1	Drives the 2nd tray paper feed roller.
17	2nd tray paper feed solenoid	PSOL2	2nd tray transport solenoid
18	Exhaust fan motor	VFM	Cools the inside of the machine.
19	Job separator motor		Job separator tray up/down

6. Sensor, switch



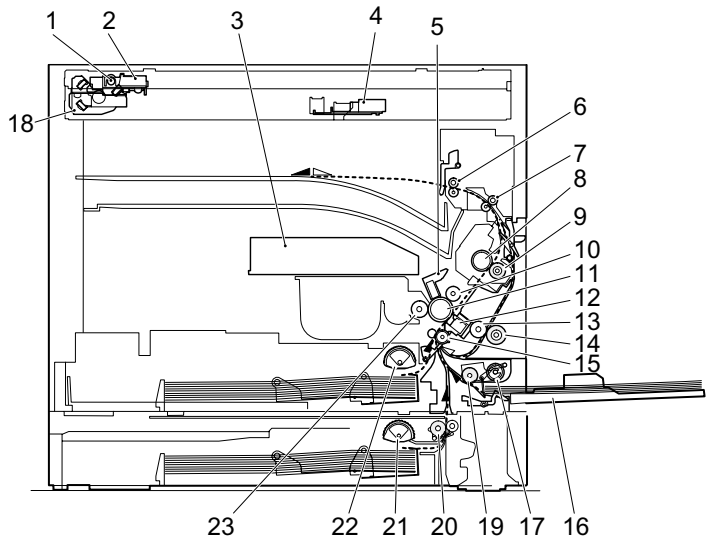
No.	Name	Code	Function operation
1	Mirror home position sensor	MHPS	Detects the mirror (scanner unit) home position.
2	Side door switch	DSWR	Side door open detection
3	Paper exit sensor (paper exit side)	POD1	Detects paper exit.
4	Shifter home position sensor	SFTHP	Shifter home position detection
5	Paper exit sensor (DUP side)	PDPX	Paper transport detection
6	Thermistor	RTH	Fusing section temperature detection
7	Thermostat		Fusing section abnormally high temperature detection
8	Toner density sensor	TCS	Toner quantity detection
9	2nd tray detection switch		2nd tray detection
10	Manual sensor	MPED	Manual transport detection
11	2nd tray door open/close sensor	DRS2	2nd tray door open/close detection
12	2nd tray door paper pass sensor	PPD2	2nd tray paper entry detection
13	2nd tray paper empty sensor	CSS2	2nd tray paper empty detection
14	Paper in sensor	PIN	Paper transport detection
15	Cassette empty		Tray paper entry detection
16	Front cover SW		Front cover open detection
17	Power switch	MAIN SW	Turns ON/OFF the main power source.
18	Tray full sensor	TRAY-D	Tray full detection
19	Job separator paper presence/empty sensor	TRAY-FULL	Job separator tray paper presence/empty detection
20	Job separator HP sensor	LFT UP	Job separator HP detection
21	Lower limit switch	/ JOBS_DLD	Job separator tray lower limit position detection
22	OC sensor	OCSW	Original cover and SPF open/close detection
23	Original size sensor(Main Scaning)	DSIN0	Original size detection
24	Original size sensor(Sub Scaning)	DSIN1	Original size detection

7. PWB unit



No.	Name	Function operation
1	Copy lamp Inverter PWB	Copy lamp control
2	I / F PWB	USB1.1, IEEE1284 I/F
3	CCD sensor PWB	Image scanning
4	Main control PWB	Main control PWB
5	Tray PWB	Shifter motor control
6	IMC2 PWB	Electronic sort, USB2.0 << Option:AR-EB9>>
7	2nd cassette PWB	2nd cassette control
8	High voltage PWB	High voltage control
9	Power PWB	AC power input/DC power control
10	Operation main PWB	Operation panel input/Display, operation panel section control
11	LCD OPE PWB	Display and operation panel control
12	FAX • KEY PWB	FAX operation input, key operation input<< Option:AR-FX11>>
13	FAX main PWB	FAX control<< Option:AR-FX11>>

8. Cross sectional view



No.	Name	Function/Operation
1	Copy lamp	Image radiation lamp
2	Copy lamp unit	Operates in synchronization with No. 2/3 mirror unit to radiate documents sequentially.
3	LSU unit	Converts image signals into laser beams to write on the drum.
4	Lens unit	Reads images with the lens and the CCD.
5	MC holder unit	Supplies negative charges evenly on the drum.
6	Paper exit roller	Used to discharge paper.
7	Transport roller	Used to transport paper.
8	Upper heat roller	Fuses toner on paper (with the Teflon roller).
9	Lower heat roller	Fuses toner on paper (with the silicon rubber roller).
10	Waste toner transport roller	Transports waste toner to the waste toner box.
11	Drum unit	Forms images.
12	Transfer charger unit	Transfer images (on the drum) onto paper.
13	DUP follower roller	
14	Duplex transport roller	Transports paper for duplex .
15	Resist roller	Takes synchronization between the paper lead edge and the image lead edge.
16	Manual paper feed tray	Manual paper feed tray
17	Manual paper pick up roller	Picks up paper in manual paper feed.
18	No. 2/3 mirror unit	Reflects the images from the copy lamp unit to the lens unit.
19	Manual transport roller	Transports paper from the manual paper feed port.
20	2nd tray paper transport roller	Transports paper from the 2nd tray.
21	2nd tray paper pick up roller (semi-circular roller)	Picks up paper from the 2nd tray.
22	1st tray paper feed roller (semi-circular roller)	Picks up paper from the 1st tray.
23	MG roller	Puts toner on the OPC drum.

[5] UNPACKING AND INSTALLATION

1. Installing conditions

A. Copier installation

Do not install your copier in areas that are:
- damp, humid, or very dusty
- exposed to direct sunlight
- poorly ventilated
- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.
- Be sure to allow the required space around the machine for servicing and proper ventilation.

B. Power source

- Use an exclusive-use power outlet. If the power plug of this machine is inserted into a power outlet commonly used with other illumination units, flickers of the lamp may be result. Use a power outlet which is not used commonly with any illumination units.
- Avoid complex wiring.

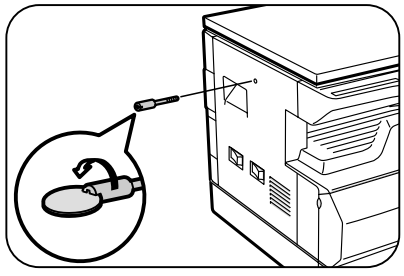
C. Grounding wire connection.

- To avoid danger, be sure to connect a grounding wire. If no grounding wire is connected and a leakage occurs, a fire or an electric shock may be result.

2. Removal of protective material and fixing screw

1) Remove all tapes and protective material.
- Remove all tapes, then open the document cover and remove the protective material of sheet shape

2) Remove the fixing screw.
- Use a coin to remove the fixing screw.
- The fixing screw is required when transporting the machine. Keep it in the tray. (Refer to the later description.)

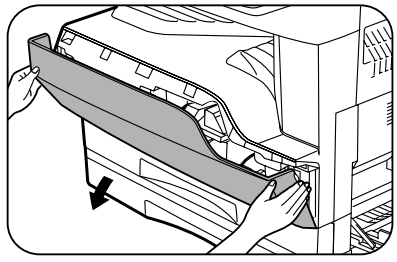


3.Installing procedure

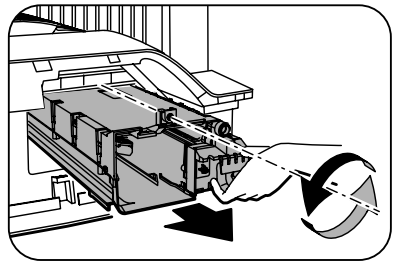
A.Developer cartridge installation

1) Open the manual tray, and open the side cover.

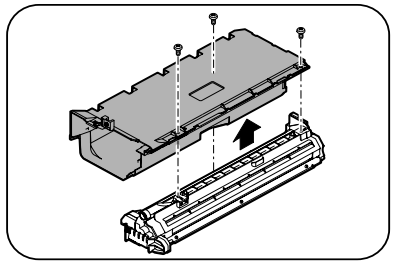
2) Open the front cover.
- Hold the both sides and pull down to open.



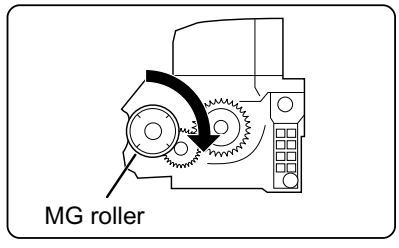
3) Loosen the screw and remove the developer cartridge.



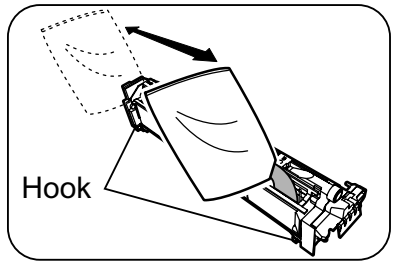
4) Remove the developer tank from the developer cartridge.



5) Supply developer into the developer tank while rotating the MG roller in the arrow direction.



* Shake the developer bag enough before opening it.



Note: Check that the DV seal is free from developing agent. If developing agent is attached to the DV seal, clean it carefully.
Check to insure that the hook is engaged in two positions.

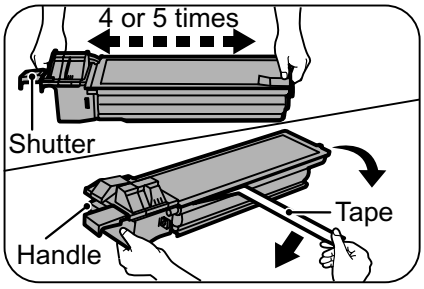
6) Attach the developer tank to the developer cartridge.
* After supplying developer into the developer cartridge, do not tilt or shake the developer cartridge.
7) Attach the developer cartridge to the copier, and fix it with the screw.

B. Toner cartridge installation

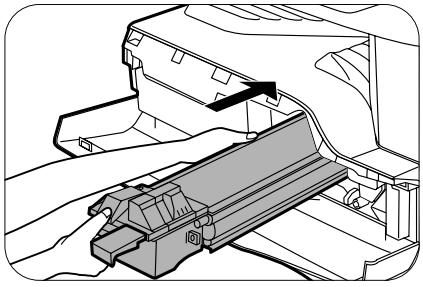
1) Shake the toner cartridge several times horizontally, and remove the tape.

* Do not hold the shutter lever when shaking.

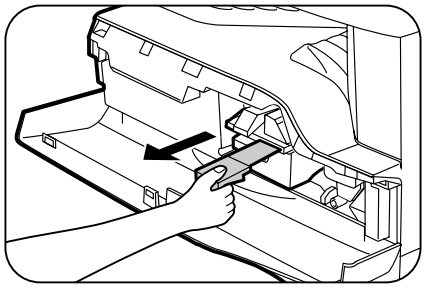
* After removing the tape, do not tilt or shake the toner cartridge.



2) Attach the toner cartridge to the copier.

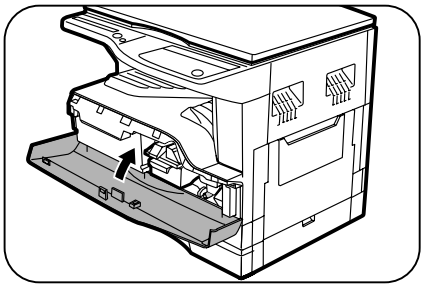


3) Pull the shutter lever.



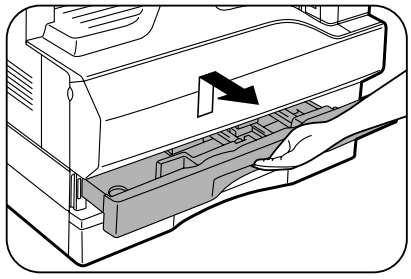
Close the front cover A, then close the side cover B.

- When closing the front cover, gently press the both sides.
- When closing the side cover, hold the knob.
- When closing the covers, be sure to close the front cover first, then close the side cover. If closed in a wrong sequence, the covers may be broken.

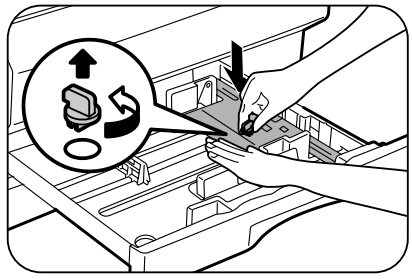


4. Removal and storage of fixing screw

1) Lift the knob and gently pull out the tray.

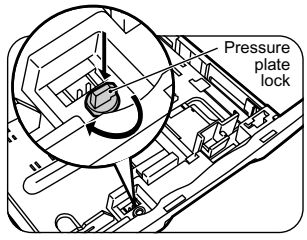


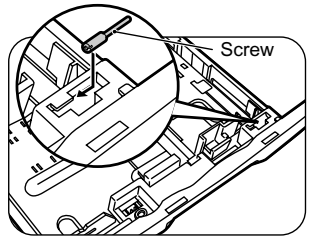
2) Hold the paper pressure plate and turn the fixing screw in the arrow direction.



3) Store the fixing pin and the fixing screw in the tray.

- Store the fixing screw which was removed in the above procedure 2 and the fixing screw which was removed in procedure 2 of 2.
- Removal of protective material and fixing screw in the storage place in the tray.

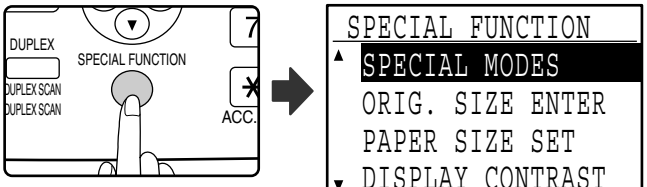




5. Changing the paper size setting of a tray

If the size of the loaded paper is different from the size shown in the display, follow the steps below to change the paper size setting of the tray.
The paper size setting cannot be changed during copying, printing, fax printing (when the fax option is installed), or interrupt copying, or when a misfeed has occurred. However, if the machine is out of paper or out of toner, the paper size setting can be changed during copying, printing, and fax printing.
The paper size cannot be set for the bypass tray.

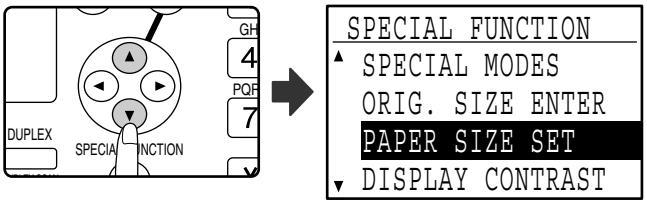
1) Press the [SPECIAL FUNCTION] key.



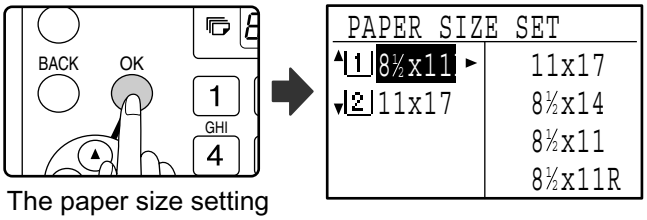
The special function screen will appear.

The screen shown above is the copy mode screen.

2) Press the [▼] or [▲] key to select "PAPER SIZE SET".



3) Press the [OK] key.

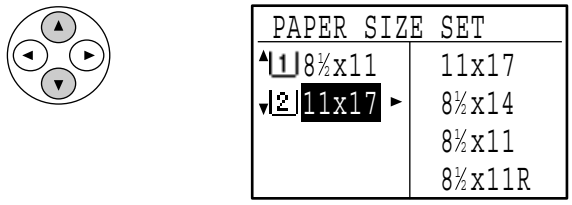


The paper size setting screen will appear.

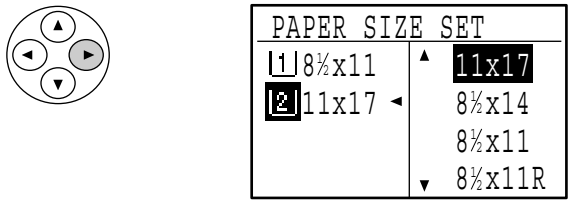
Note
[1] : Shows tray "1".
[2] : Shows tray "2".

4) Press the [▼] or [▲] key to select the paper tray for which the paper size is being changed.

Example: Tray 2



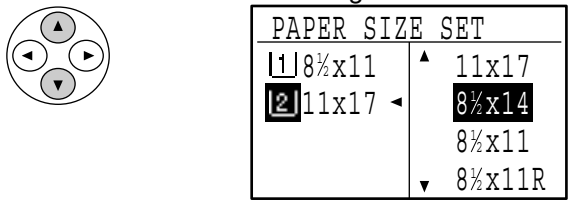
5) Press the [▶] key.



The cursor moves to the paper size selection position on the right.

6) Press the [▼] or [▲] key to select the paper size.

Example:
Selecting 8-1/2" x 14" size



To change the size of another paper tray, press the [◀] key and then repeat steps 4 to 6.

7) Press the [OK] key.
A message asking you to confirm the new paper size setting will appear.

8) Press the [OK] key.
The selected paper size will be stored and the display will return to the base screen.

Note
Affix the paper size label for the paper size selected in step 6 to the label position on the right end of the tray.

[6] ADJUSTMENTS

1. Adjustment item list

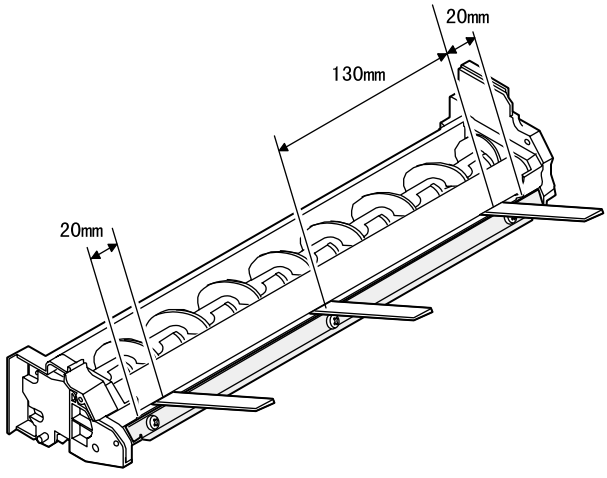
Section		Adjustment item		Adjustment procedure/SIM No.
A	Process section	(1)	Developing doctor gap adjustment	Developing doctor gap adjustment
		(2)	MG roller main pole position adjustment	MG roller main pole position adjustment
		(3)	Developing bias voltage check	
		(4)	Main charger voltage check	
B	Mechanism section	(1)	Image position adjustment	SIM 50
		(2)	Main scanning direction(FR direction) distortion balance adjustment	No. 2/3 mirror base unit installing position adjustment
				Copy lamp unit installing position adjustment
		(3)	Main scanning direction (FR direction) distortion adjustment	Rail height adjustment
		(4)	Main scanning direction (FR direction) magnification ratio adjustment	SIM 48-1
		(5)	Sub scanning direction (scanning direction) magnification ratio adjustment	OC mode in copying (SIM 48-1)
				SPF mode in copying (SIM 48-5)
		(6)	Off center adjustment	OC mode (SIM 50-12)
		(7)	SPF white correction pixel position adjustment (required in an SPF model when replacing the lens unit)	SIM 63-7
C	Image density adjustment	(1)	Copy mode	SIM 46-1

2. Copier adjustment

A.Process section

(1) Developing doctor gap adjustment

1) Loosen the developing doctor fixing screw A.
2) Insert a thickness gauge of 1.5mm to the three positions at 20mm and 130mm from the both ends of the developing doctor as shown.



3) Push the developing doctor in the arrow direction, and tighten the developing doctor fixing screw. (Perform the same procedure for the front and the rear frames.)
4) Check the clearance of the developing doctor. If it is within the specified range, then fix the doctor fixing screw with screw lock.

* When inserting a thickness gauge, be careful not to scratch the developing doctor and the MG roller.

<Adjustment specification>

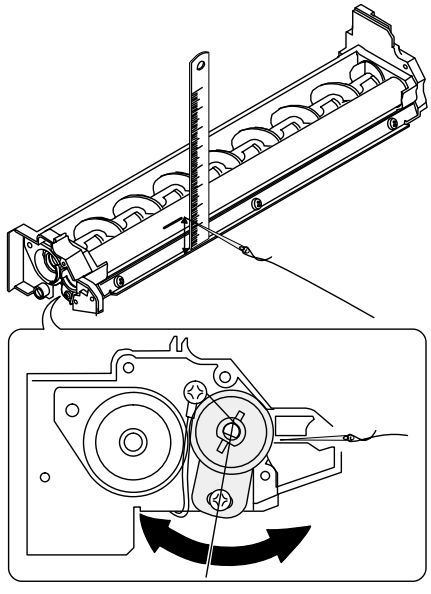
Developing doctor gap

Both ends (20mm from the both ends) : $1.5^{+0.1}_{-0.15}$ mm

C (Center) (150mm from the both ends) :$1.55^{+0.15}_{-0.2}$ mm

(2) MG roller main pole position adjustment

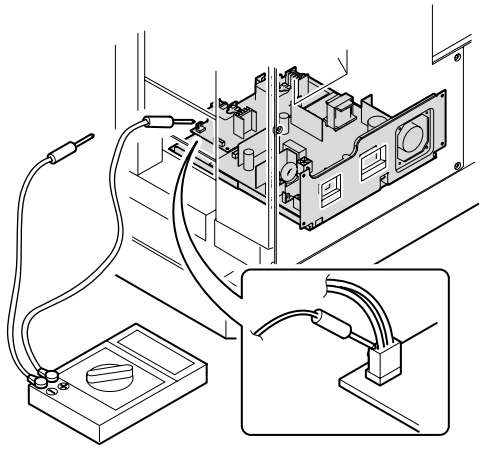
1) Remove and separate the waste toner box and put the developing unit on a flat surface.
2) Tie a string to a needle or a pin.
3) Hold the string and bring the needle close to the MG roller horizontally. (Do not use paper clip, which is too heavy to make a correct adjustment.) (Put the developing unit horizontally for this adjustment.)
4) Do not bring the needle into contact with the MG roller, but bring it to a position 2 or 3mm apart from the MG roller. Mark the point on the MG roller which is on the extension line from the needle tip.
5) Measure the distance from the marking position to the top of the doctor plate of the developing unit to insure that it is 18mm.
   If the distance is not within the specified range, loosen the fixing screw A of the main pole adjustment plate, and move the adjustment plate in the arrow direction to adjust.



(3)Developing bias voltage check

Note: Use a digital multi-meter with an internal resistance of 10MΩ or more.

1) Set the digital multi-meter range to DC700V.
2) Put the test rod of the digital multi-meter on the developing bias voltage output check pin.
3) Turn on the power, execute SIM25-1.



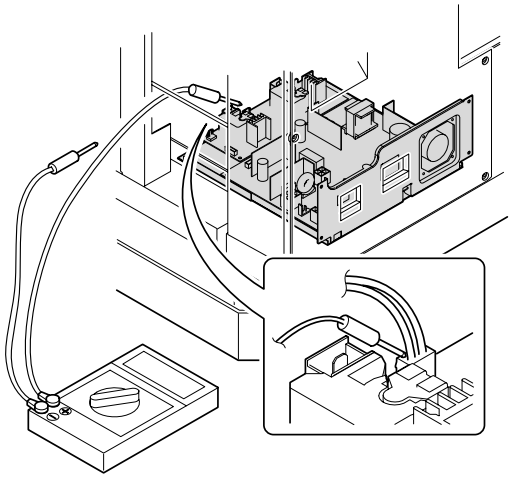
<Specification>

Mode	Specification
Developing bias voltage	DC - 400±8V

(4) Grid bias voltage check

Note: Use a digital multi-meter with an internal resistance of 10MΩ or more.

1) Set the digital multi-meter range to DC700V.
2) Put the test rod of the digital multi-meter on the grid bias voltage output check pin.
3) Turn on the power.
   (The voltage is outputted in the grid bias High output mode during warming up, and in the grid bias Low output mode when warming up is completed.)



<Specification>

Mode	Specification
Grid bias LOW	DC - 380±8V
Grid bias HIGH	DC - 525±10V

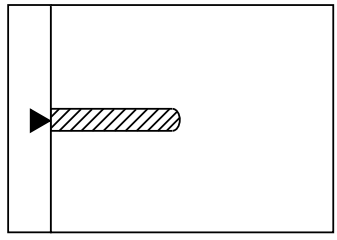
B. Mechanism section

(1) Image position adjustment

a. OC image lead edge position adjustment (SIM 50-1)

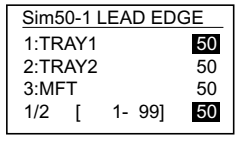
Note: In advance to this adjustment, the sub scanning magnification ratio adjustment must be performed.

1) Set a scale on the OC table as shown below.

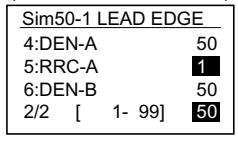


2) Make a copy.
3) Check the copy output. If necessary, perform the following adjustment procedures.
4) Execute SIM 50-01.
   Select a desired mode with the arrow keys, enter the adjustment value with 10-key, and press [OK] key.
   When [START] key is pressed, a sheet is printed.
   When [RETURN] key is pressed, the process returns to the mode selection window.

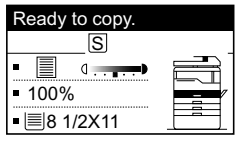
(Mode selection window 1)



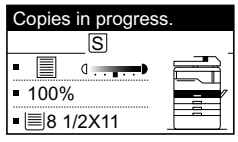
(Mode selection window 2)



(Copy start window)



(Copy execution window)

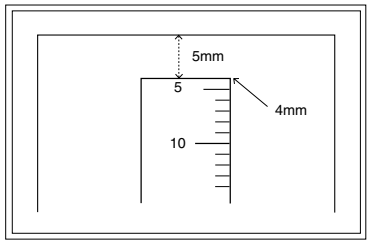


<Adjustment specification>

Adjustment mode	SIM	Display text array	Set value	Spec value	Set range
OC image lead edge position	SIM 50-1	RRC-A	R/0.1	Lead edge void: 1 - 4mm Image loss: 3mm or less	1 - 99
Main cassette print start position		TRAY1	H/0.1		
2nd cassette print start position		TRAY2			
Multi bypass tray print start position		MFT			
Lead edge void		DEN-A	B/0.05		

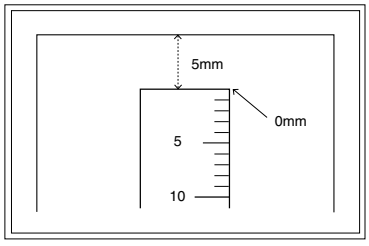
5) Set the OC lead edge position set value (RRC-A) to [1]
   The OC image scanning start position is shifted inside the document edge.
6) Set the main cassette lead edge void adjustment value (DEN-A)* to [1]
   The lead edge void becomes the minimum.

7) Set the main cassette print start position value (TRAY1) to [1] and make a copy.
The print start position is shifted inside the document edge.



*The dimension varies depending on the model.

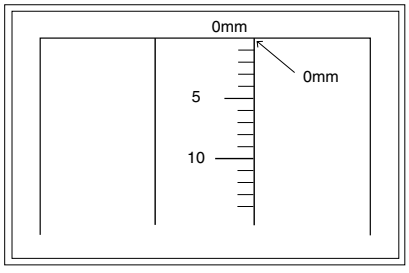
8) Measure the image loss R of the copied image. Enter the set value of the image scanning lead edge position (RRC-A) again.
• 1 step of the set value corresponds to about 0.1mm shift.
• Calculate the set value from the formula below.
R/0.1(mm) = Image loss set value
<R: Image loss measurement value (mm)>



* The scanning edge is set.
(A line may be printed by scanning the document edge.)

Example: 4/0.1 = 40 = about 40
Note: If the set value is not obtained from the above formula, perform the fine adjustment.

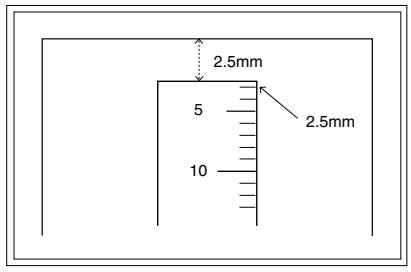
9) Measure the distance H between the paper lead edge and the image print start position. Set the image print start position set value (TRAY1) again.
• 1 step of the set value corresponds to about 0.1mm shift.
• Calculate the set value from the formula below.
H/0.1(mm) = Image print start position set value
<H: Print start position measurement value (mm)>



*Fit the print edge with the paper edge, and perform the lead edge adjustment.

Example: 5/0.1 = 50 = about 50
Note: If the set value is not obtained from the above formula, perform the fine adjustment.

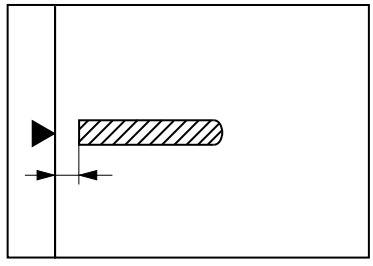
10) Set the lead edge void adjustment value (DEN-A)* again.
• 1 step of the set value corresponds to about 0.1mm shift.
• Calculate the set value from the formula below.
B/0.05 (mm) = Lead edge void adjustment value
<B: Lead edge void (mm)>



Example: When setting the lead edge void to 2.5mm
:2.5 /0.05 = about 50
Note: If the set value is not obtained from the above formula, perform the fine adjustment.

b.SPF image lead edge position adjustment (SIM50-6)

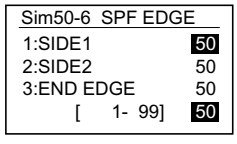
1) Set a scale on the OC table as shown below.



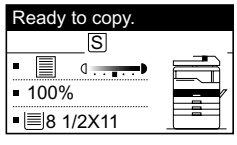
Note: Since the printed copy is used as a test chart, put the scale in parallel with the edge lines.

2) Make a copy, Then use the copy output as an original to make an SPF copy again.
3) Check the copy output. If necessary, perform the following adjustment procedures.
4) Execute SIM 50-6.
5) Set the SPF lead edge position set value (SIDE1) so that the same image is obtained as that obtained in the previous OC image lead edge position adjustment.

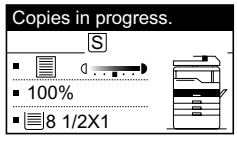
(Mode selection window)



(Copy start window)



(Copy execution window)

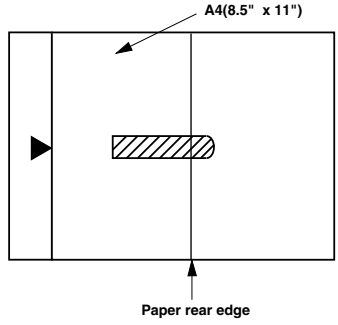


<Adjustment specification>

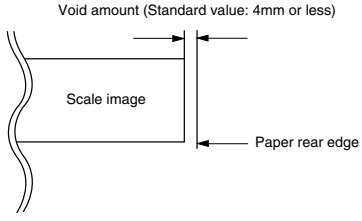
Adjustment mode	SIM	Display text array	Set value	Spec value	Set range
SPF image lead edge position (1st print surface)	SIM 50-6	SIDE1	1 step: 0.1mm shift	Lead edge void: 1 - 4mm Image loss: 3mm or less	1 - 99

c.Rear edge void adjustment (SIM50-1, SIM50-19)

1) Set a scale as shown in the figure below.



2) Set the document size to A4 (8.5" x 11"), and make a copy at 100%.
3) If necessary, perform the following adjustment procedure.



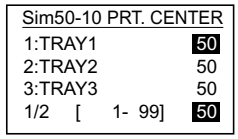
4) Execute SIM50-01 and select “DEN-B” with the arrow keys.
   The currently set adjustment value is displayed.
5) Enter the set value and press the start key. The correction value is stored and a copy is made.

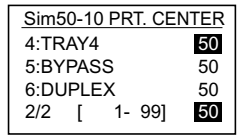
<Adjustment specification>

Mode	SIM	Display text array	Set value	Specifi-cation	Set range
Rear edge void	SIM 50-1	DEN-B	1 step: 0.1mm shift	4mm or less	1 - 99

d. Paper off center adjustment (SIM50-10)

1) Set a test chart (UKOG-0089CSZZ) on the document table.
2) Select a paper feed port and make a copy. Compare the copy and the test chart. If necessary, perform the following adjustment procedure.
3) Execute SIM 50-10. After completion of warm-up, shading is performed and the currently set off center adjustment value of each paper feed port is displayed.





4) Enter the set value and press the start key. The correction value is stored and a copy is made.

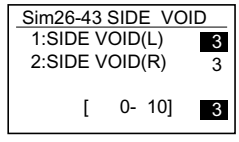
<Adjustment specification>

Adjustment mod	SIM	Display text array	Set value	Specifi-cation	Set range
Tray1	SIM 50-10	TRAY1	Add 1: 0.1mm shift to R side. Reduce 1: 0.1mm shift to L side.	Single: Center ±2.0mm	1 - 99
Tray2		TRAY2			
Tray3		TRAY3			
Tray4		TRAY4			
Manual paper feed tray		BYPASS			
Duplex (Second print surface)		DUPLEX			

e.Side edge void area adjustment (SIM26-43)

Note: Before performing this adjustment, be sure to check that the paper off center adjustment (SIM 50-10) is completed.

1) Set a test chart (UKOG-0089CSZZ) on the document table.
2) Select a paper feed port and make a copy. Compare the copy and the test chart. If necessary, perform the following adjustment procedure.
3) Execute SIM 26-43 and set the density mode to SIDE VOID (L), SIDE VOID (R).
   The currently set adjustment value is displayed.



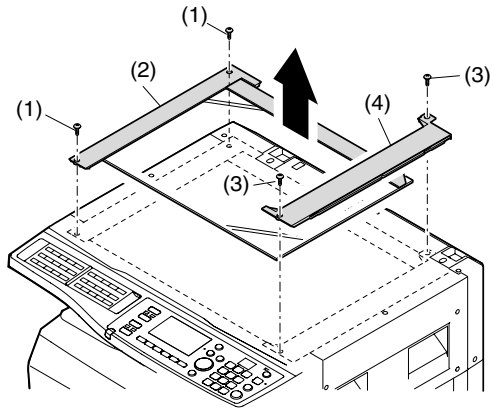
4) Enter the set value and press the start key. The correction value is stored.

<Adjustment specification>

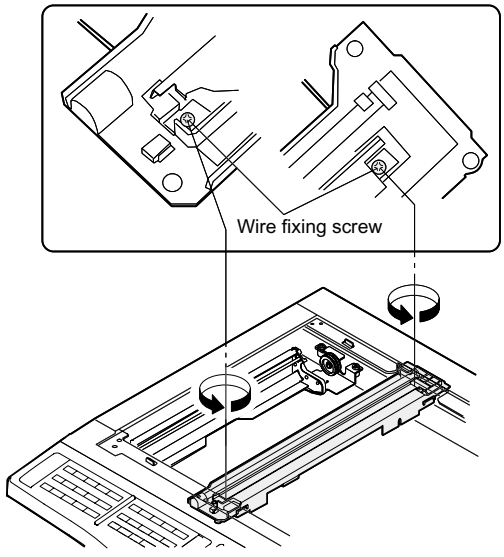
Adjustment mode	SIM	Display text array	Set value	Specifi-cation	Set range
Side void (left)	26-43	SIDE VOID (L)	1 step: 0.5mm shift	0.5 - 4mm	1 - 99
Side void (right)		SIDE VOID (R)			

(2) Main scanning direction(FR direction) distortion balance adjustment

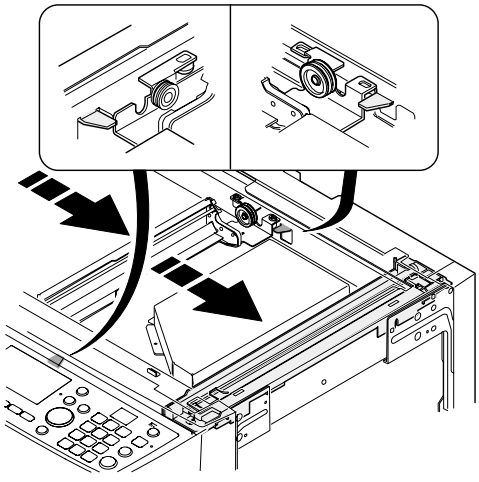
1) Remove the OC glass and the right cabinet.



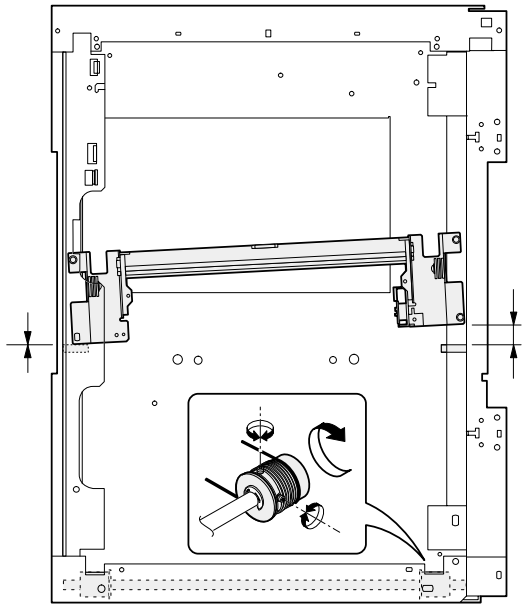
2) Loosen the copy lamp unit wire fixing screw.



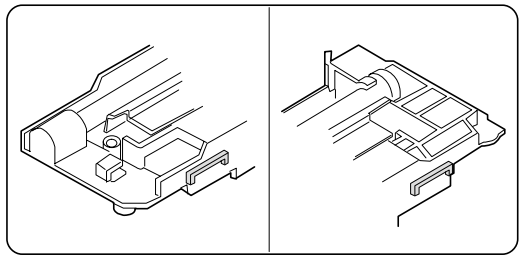
3) Manually turn the mirror base drive pulley and bring No. 2/3 mirror base unit into contact with the positioning plate. At that time, if the front frame side and the rear frame side of No. 2/3 mirror base unit are brought into contact with the positioning plate at the same time, the mirror base unit parallelism is proper. If one of them is in contact with the positioning plate, perform the adjustment of 4).

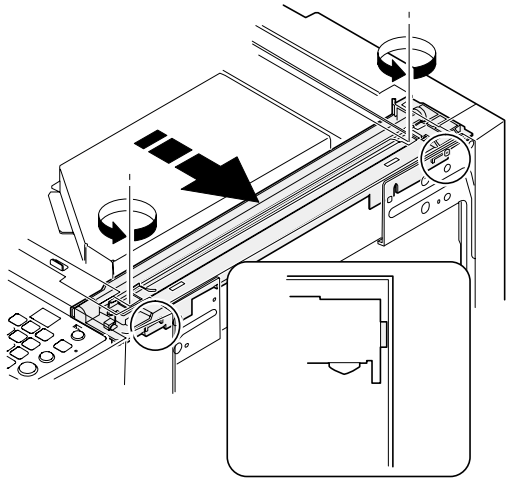


4) Loosen the set screw of the scanner drive pulley which is not in contact with No. 2/3 mirror base unit positioning plate.
5) Without moving the scanner drive pulley shaft, manually turn the scanner drive pulley until the positioning plate is brought into contact with No. 2/3 mirror base unit, then fix the scanner drive pulley.



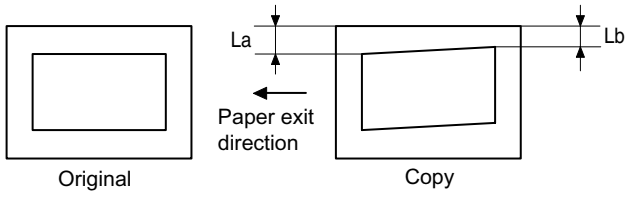
6) Put No. 2/3 mirror base unit on the positioning plate again, push the projections on the front frame side and the rear frame side of the copy lamp unit to the corner frame, and tighten the wire fixing screw.



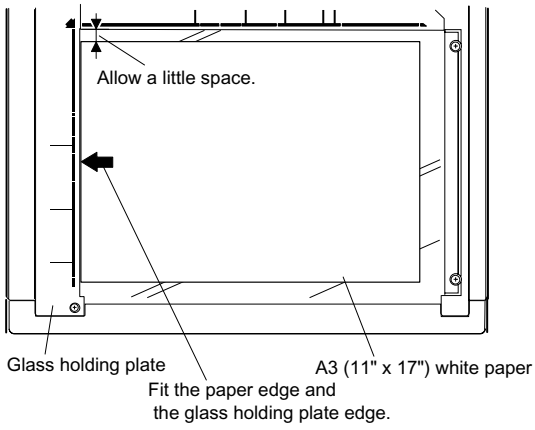


(3) Main scanning direction (FR direction) distortion adjustment

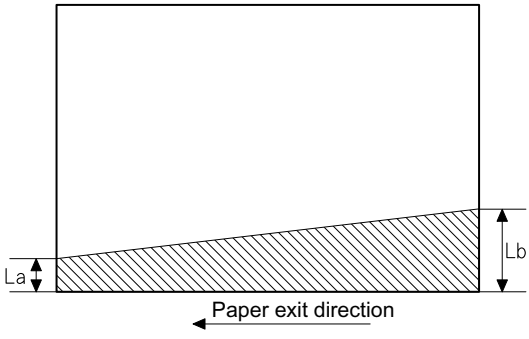
This adjustment must be performed in the following cases:
- When the mirror base drive wire is replaced.
- When the lamp unit, or No. 2/3 mirror holder is replaced.
- When a copy as shown is made.



1) Set A3 (11" x 17") white paper on the original table as shown below.



2) Open the original cover and make a normal (100%) copy.
3) Measure the width of the black background at the lead edge and at the rear edge.

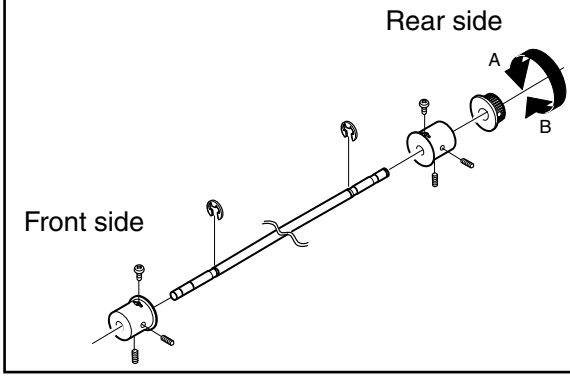


La: Lead edge black background width
Lb: Rear edge black background width

If the width (La) of the black background at the lead edge is equal that (Lb) at the rear edge, there is no need to execute the following procedures of 4) - 7).

4) Loosen the mirror base drive pulley fixing screw on the front frame side or on the rear frame side.

- When La < Lb
  Turn the mirror base drive pulley on the front frame side in the arrow direction A.
  (Do not move the mirror base drive pulley shaft.)
- When La > Lb
  Turn the mirror base drive pulley on the rear frame side in the arrow direction A.
  (Do not move the mirror base drive pulley shaft.)



5) Tighten the mirror base drive pulley fixing screw.

<Adjustment specification>

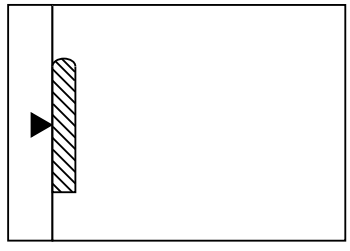
La = Lb

6) Execute the main scanning direction (FR) distortion balance adjustment previously described in 2) again.

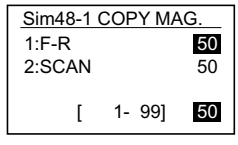
(4) Main scanning direction (FR direction) magnification ratio adjustment (SIM 48-1)

Note: Before performing this adjustment, be sure to check that the CCD unit is properly installed.

1) Put a scale on the original table as shown below.



2) Execute SIM 48-1.
3) After completion of warming up, shading is operated and the current correction value of the main scanning direction magnification ratio is displayed on the screen.



4) Enter the set values of the items of F and R, and press [START] key. The correction values are saved and a copy is made.

<Adjustment specification>

Note: A judgment must be made with 200mm width, and must not be made with 100mm width.

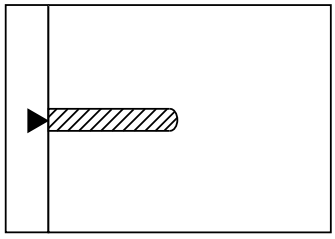
Adjustment mode	SIM	Display text array	Set value	Specifications	Set range
Main scanning direction magnification ratio	48-1	F-R	+1 → +0.1% -1 → 0.1%	Normal ± 1.0%	1 - 99

(5) Sub scanning direction (scanning direction) magnification ratio adjustment (SIM 48-1, SIM 48-5)

a. OC mode in copying (SIM48-1)

Note: Before performing this adjustment, be sure to check that the CCD unit is properly installed.

1) Put a scale on the original table as shown below, and make a normal (100%) copy.



2) Compare the scale image and the actual image. If necessary, perform the following adjustment procedures.
3) Execute SIM 48-1.
4) After completion of warming up, shading is operated and the current correction value of the sub scanning direction magnification ratio is displayed on the screen.

```
Sim48-1 COPY MAG.
1:F-R              50
2:SCAN             50

     [   1- 99]    50
```

5) Select [2.SCAN] mode with the cross cursor.

```
Sim48-1 COPY MAG.
1:F-R              50
2:SCAN             50

     [   1- 99]    50
```

6) Enter the set value and press the start key.
The set value is stored and a copy is made.

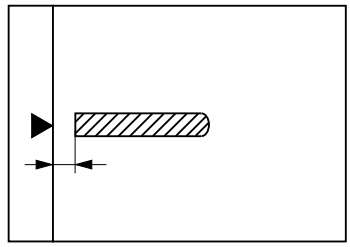
<Adjustment specification>

Adjustment mode	SIM	Display text array	Set value	Specifications	Set range
Sub scanning direction magnification ratio OC mode	48-1	SCAN	+1 → +0.1% -1 → 0.1%	Normal ± 1.0%	1 - 99

b. RSPF sub scanning direction magnification ratio (SIM48-5)

Note:
- Before performing this adjustment, be sure to check that the CCD unit is properly installed.
- Before performing this adjustment, the OC mode adjustment in copying must be completed.

1) Put a scale on the original table as shown below, and make a normal (100%) copy to make a test chart.



Note: Since the printed copy is used as a test chart, put the scale in parallel with the edge lines.

2) Set the test chart on the SPF and make a normal (100%) copy.
3) Compare the scale image and the actual image. If necessary, perform the following adjustment procedures.
4) Execute SIM 48-5.
5) After warm-up, shading is performed.
6) Check to confirm that the RSPF (SIDE1) mode is selected with the cross cursor.

```
Sim48-5 (R)SPF ZOOM
1:RSPF(SIDE1)      50
2:RSPF(SIDE2)      50

     [   1- 99]    50
```

7) Enter the set value and press the start key.
The set value is stored and a copy is made.

<Adjustment specification>

Adjustment mode	SIM	Display text array	Set value	Specifications	Set range
Sub scanning direction magnification ratio (Front surface)	48-5	RSPF (SIDE1)	+1 → +0.1% -1 → 0.1%	Normal ± 1.0%	1 - 99
Sub scanning direction magnification ratio (Back surface)		RSPF (SIDE2)			

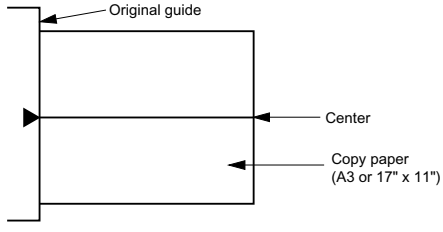
* "RSPF (SIDE2)" is displayed only when the RSPF is installed.

(6) Off center adjustment (SIM 50-12)

a. OC mode (SIM50-12)

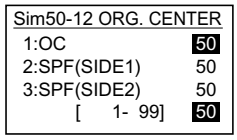
1) Make a test chart as shown below and set it so that its center line is fit with the original guide center mark.

* To make a test chart, draw a line on A3 or 11" x 17" paper at the center in the paper transport direction.



2) Make a normal copy from the manual paper feed tray, and compare the copy and the test chart.
If necessary, perform the following adjustment procedures.
3) Execute SIM 50-12.

4) After completion of warming up, shading is performed and the current off-center adjustment value is displayed on the LCD.



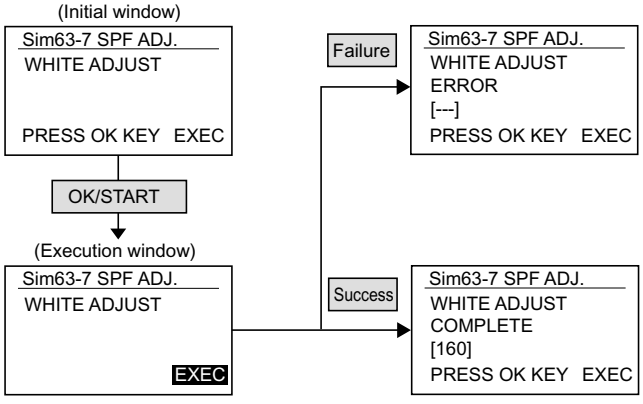
5) Enter the set value and press the start key.
The set value is stored and a copy is made.

<Adjustment specification>

Adjustment mode	SIM	Display text array	Set value	Specifi-cations	Set range
Document off-center (OC mode)	50-12	OC	+1 → Shifted to R side by +0.mm. -1 → Shifted to L side by 0.1mm.	Center ± 2.0%	1 - 99

(7) SPF white correction pixel position adjustment(SIM63-7) (required in an SPF model when replacing the lens unit)

1) Fully open the SPF.
2) Execute SIM 63-7.

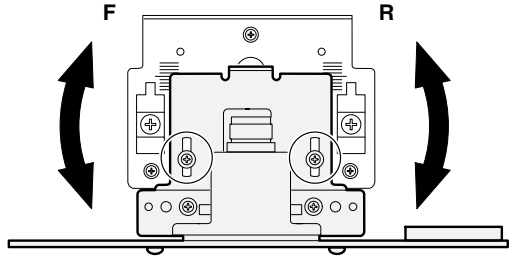


3) When [COMPLETE] is displayed on the LCD, the process is completed.
4) If the operation panel displays "ERROR,"perform the following measures.

• When the display is --:
Check that the SPF is open.
Check that the lamp is ON.(If the lamp is OFF, check the MCU connector.)
Check that the CCD harness is properly inserted into the MCU connector.

• When the display is 281 or above:
1) Remove the table glass.
2) Remove the dark box.
3) Slide the lens unit toward the front side and attach it, then execute SIM.

• When the display is 143 or below:
1) Remove the table glass.
2) Remove the dark box.
3) Slide the lens unit toward the rear side and attach it,then execute SIM.

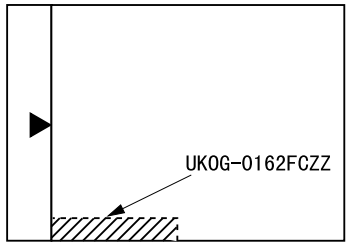


* When the lens unit is moved, execute the Main scanning direction (SIM48-1,F-R), off center adjustment(SIM50-12) and the PF original off-center adjustment.
* This adjustment is basically O.K. with SIM 63-7.

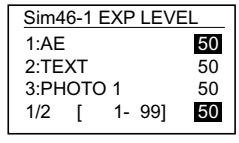
C.Image density adjustment

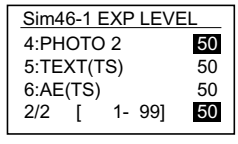
(1)Copy mode (SIM 46-1)

1) Set a test chart (UKOG-0162FCZZ) on the OC table as shown below.



2) Put several sheets of A3 or 11" x 17" white paper on the test chart.
3) Execute SIM 46-1.
4) After completion of warming up, shading is performed, and the current density level is displayed on the LCD.





Use the cross cursor to select a mode.
5) Change the set value with the 10-key to adjust the copy image density.
6) Make a copy and check that the specification below is satisfied.

<Adjustment specification>

Density mode	Display text array	Expo-sure level	Sharp Gray Chart output	Set value	Set range
Auto-matic	AE	-	"2" is slightly copied.	The greater the set value is, the darker the density is. The smaller the set value is, the lighter the density is.	1 - 99
Text	TEXT	3	"3" is slightly copied.		
Photo (Error diffu-sion)	PHOTO 1	3	"2" is slightly copied.		
Photo (Dither)	PHOTO 2	3	"2" is slightly copied.		
Toner save (Text)	TEXT (TS)	3	"3" is slightly copied.		
Toner save (Auto-matic)	AE(TS)	-	"2" is slightly copied.		

[7] SIMULATIONS

1. Entering the simulation mode

Perform the following procedure to enter the simulation mode.
"#" key → "*" key → "C" key → "*" key →
Main code → Start key → Sub code → Start key

2. Canceling the simulation mode

When the clear all key is pressed, the simulation mode is cancelled.
When the interruption key is pressed, the process is interrupted and the screen returns to the sub code entering display.

* After canceling the simulation mode, be sure to turn OFF/ON the power and check the operation.

Note: If the machine is terminated by a jam error or paper empty during copying in the adjustment by the simulation, recopying is required.

Note: The values in the simulation columns are not default values but sample values.

3. List of simulations

Main code	Sub code	Contents
01	01	Mirror scanning operation
	02	Mirror home position sensor (MHPS) status display
02	01	Single paper feeder (SPF) aging *2
	02	SPF sensor status display *2
	03	SPF motor operation check *2
	08	SPF paper feed solenoid operation check *2
	09	RSPF reverse solenoid operation check *2 *3
	10	RSPF paper exit gate solenoid operation check *2 *3
	11	SPF PS release solenoid operation check *2
03	02	Shifter/job separator sensor status display
	03	Shifter operation check
	04	Job separator operation check *4
	11	Shifter home position check
05	01	Operation panel display check
	02	Fusing lamp and cooling fan operation check
	03	Copy lamp lighting check
06	01	Paper feed/transport solenoid operation check
	02	Resist roller solenoid (RRS) operation check
	10	Main cassette semicircular roller cleaning
07	01	Warm-up display and aging with jam
	06	Intermittent aging
	08	Shifting with warm-up display
08	01	Developing bias output
	02	Main charger output (Grid = HIGH)
	03	Main charger output (Grid = LOW)
	06	Transfer charger output
09	01	Duplex motor forward rotation check *6
	02	Duplex motor reverse rotation check *6
	04	Duplex motor RPM adjustment *6
	05	Duplex motor switchback time adjustment
10	-	Toner motor operation
14	-	Trouble cancel (except for U2)
16	-	U2 trouble cancel
20	01	Maintenance counter clear
21	01	Maintenance cycle setting
22	01	Counters display
	03	Jam memory display
	04	Jam total counter display
	07	Key operator code display
	09	Paper feed counter display
	13	CRUM destination display *5
	14	P-ROM version display
	15	Trouble memory display
	22	SPF jam counter display *2
24	01	Jam total counter clear
	02	Trouble memory clear
	04	SPF counter clear *2
	05	Duplex print counter clear *6
	06	Paper feed counter clear
	07	Drum counter clear
	08	Copy counter clear
	09	Printer counter clear
	13	Scanner counter clear
	14	SPF jam total counter clear *2
	15	Scanner mode counter clear

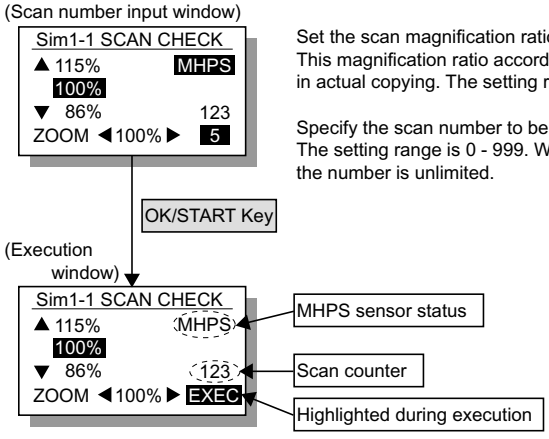
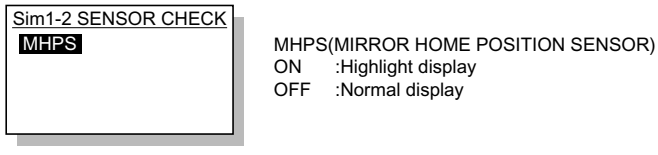
Main code	Sub code	Contents
25	01	Main motor operation check (Cooling fan motor rotation check)
	10	Polygon motor operation check
26	01	Job separator setting
	02	Size setting
	03	Auditor setting
	04	Copier duplex setting
	05	Count mode setting
	06	Destination setting
	07	Machine condition check
	18	Toner save mode setting
	20	Job separator paper exit mode setting
	22	Language setting clear
	30	CE mark conformity control ON/OFF
	31	Auditor mode exclusive setup
	36	Cancel of stop at maintenance life over
	37	Cancel of stop at developer life over
	39	Memory capacity check
	42	Transfer ON/OFF timing control setting
	43	Side void amount setting
	51	Copy temporary stop function setting
	54	LCD contrast PWM duty setting
	60	FAX mode key Enable/Disable setting
	73	Toner save setting display/non-display
	74	Total counter display change setting
30	01	Paper sensor status display
41	01	Document size detection photo sensor check
	02	Document size detection photo sensor detection level adjustment
	03	Document size detection photo sensor light receiving/ detection level check
	04	Detection level adjustment when the document size is settled(15degrees - 20degrees)
42	01	Developing counter clear
43	01	Fusing temperature setting (Normal copy)
	12	Standby mode fusing fan rotation setting
	13	Fusing paper interval control allow/inhibit setting
44	34	Transfer current setting
	40	Setting of rotation time before toner supply
46	01	Copy density adjustment (300dpi)
	02	Copy density adjustment (600dpi)
	09	Copy exposure level adjustment, individual setting (Text) 300dpi
	10	Copy exposure level adjustment, individual setting (Text) 600dpi
	11	Copy exposure level adjustment, individual setting (Photo) 600dpi
	18	Image contrast adjustment (300dpi)
	19	Exposure mode setting (Gamma table setting/AE operation mode setting/ Photo image process setting)
	20	SPF exposure correction *2
	29	Image contrast adjustment (600dpi)
	30	AE limit setting
	31	Image sharpness adjustment
48	01	Main/sub scanning magnification ratio adjustment
	05	SPF/RSPF mode sub scanning magnification ratio adjustment in copying *2
49	01	Flash ROM program writing mode

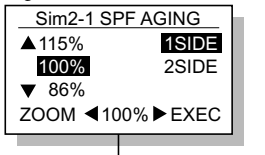
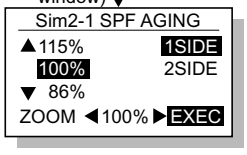
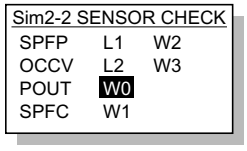
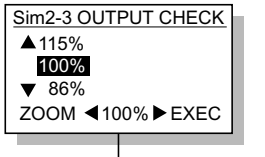
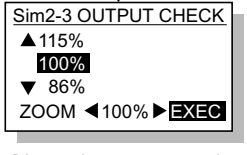
Main code	Sub code	Contents
50	01	Image lead edge adjustment
	06	Copy lead edge position adjustment (SPF/RSPF) *2
	10	Paper off-center adjustment
	12	Document off-center adjustment
	18	Memory reverse position adjustment in duplex copy *1
	19	Rear edge void adjustment in duplex copy *6
51	02	Resist amount adjustment
53	08	SPF scanning position automatic adjustment *2
	10	SPF scanning position setting
61	03	HSYNC output check
63	01	Shading check
	07	SPF automatic correction *2
64	01	Self print
65	10	Key reception time setting display/non-display setting
	11	Info lamp setting
67	50	USB reception speed adjustment

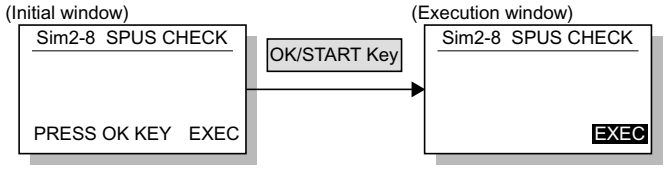
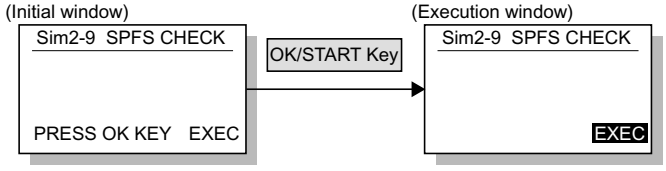
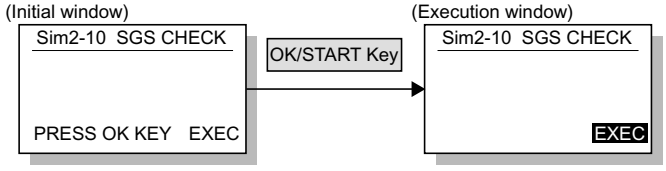
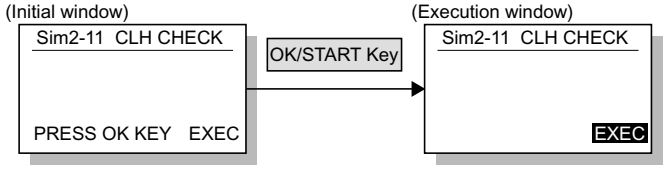
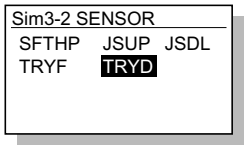
<Execution inhibit conditions>

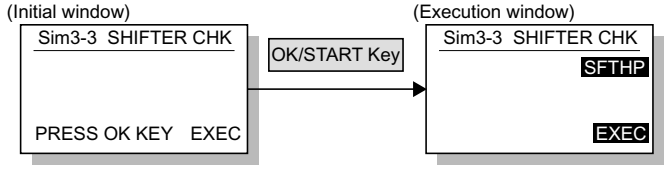
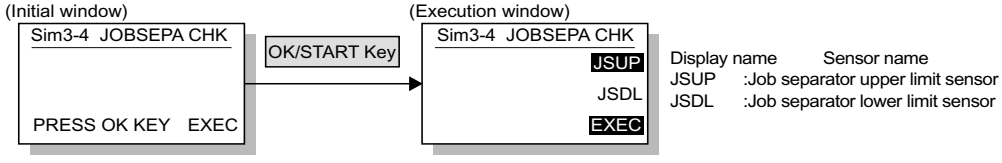
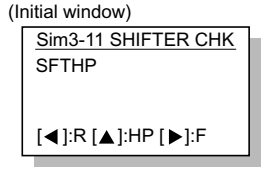
*1) Execution is inhibited when the duplex setup is OFF and other than RSPF is set.
*2) Execution is inhibited when OC.
*3) Execution is inhibited when SPF. (Not RSPF)
*4) Execution is inhibited when the job separator is not installed.
*5) Execution is inhibited when the model is not provided with the CRUM.
*6) Execution is inhibited when the duplex setup is OFF.

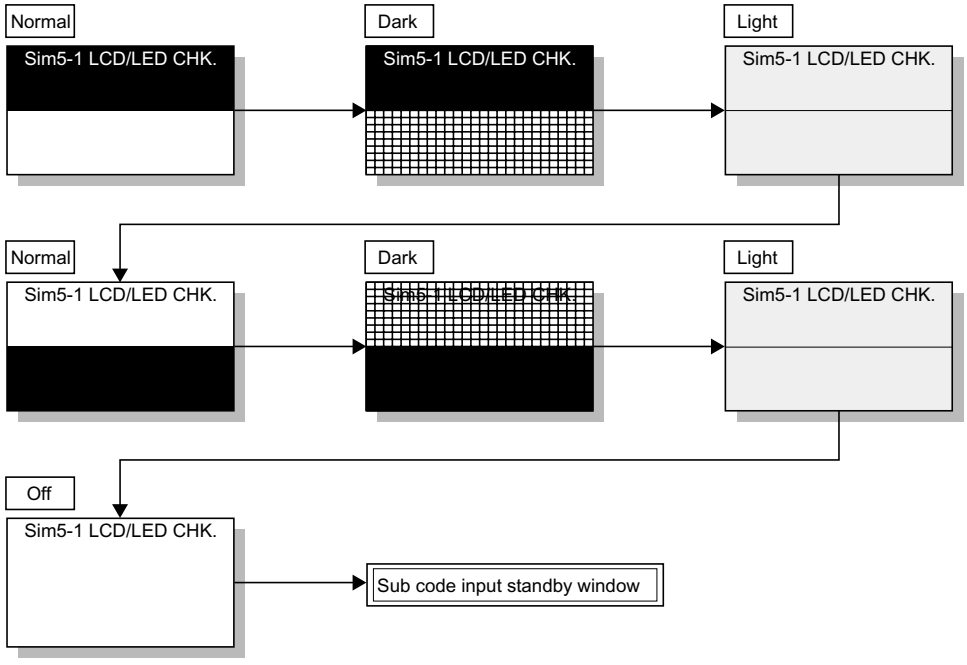
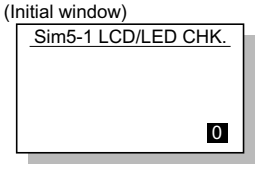
4. Contents of simulations

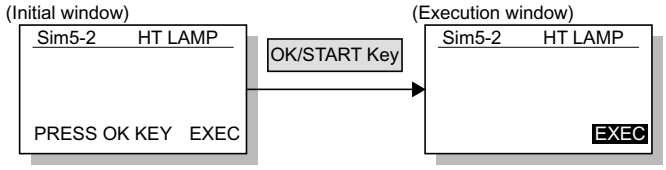
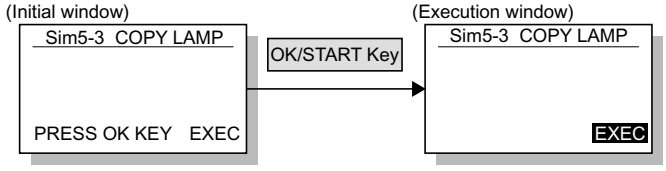
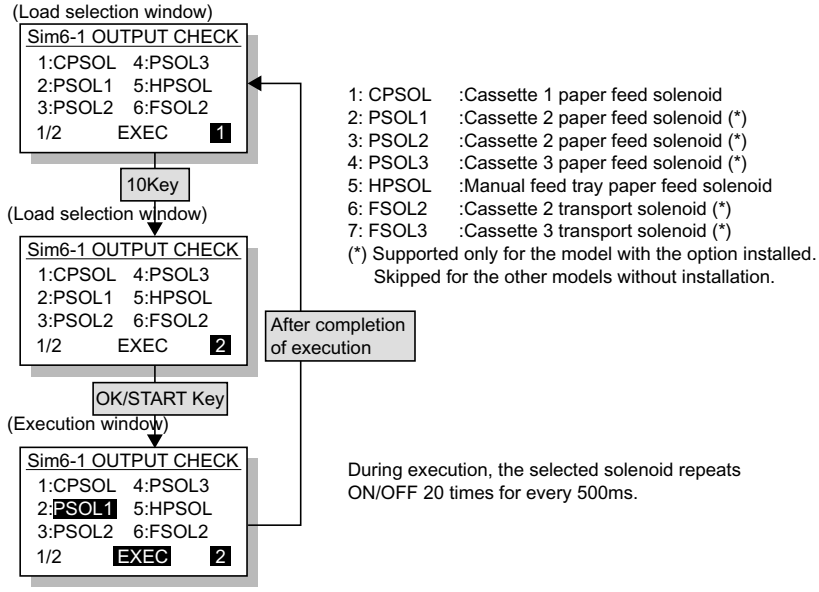
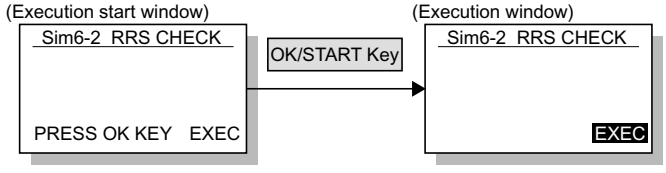
Main code	Sub code	Contents	Remark
01	01	**Mirror scanning operation** Used to check the operations of the scanner unit and its control circuit. Enter the number of times and the magnification ratio, and press [OK] key to operate the scanner unit. The speed is variable according to the specified magnification ratio. The number of scanning can be specified by entering a value to the right lower section of the LCD. •Setting range of magnification ratio: 25%-400% •Setting range of the number of scanning: 0-999 (When 0 is set, it means unlimited.)  Used to display the status (ON/OFF) of the mirror HP sensor on the LCD during scanning. (Highlighted at ON) "EXEC" is displayed to indicate execution is in process. The scan counter is displayed above "EXEC." This counter is counted up even in simulation. The copy lamp is lighted during scanning. [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window. [C] key: Input value clear 10 key: Input of the number of scanning	
	02	**Mirror home positions sensor (MHPS) status display** Used to monitor the mirror home position sensor and display the ON/OF status of the sensor on the LCD.  [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window.	

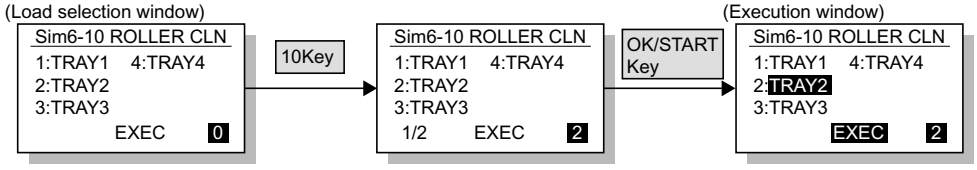
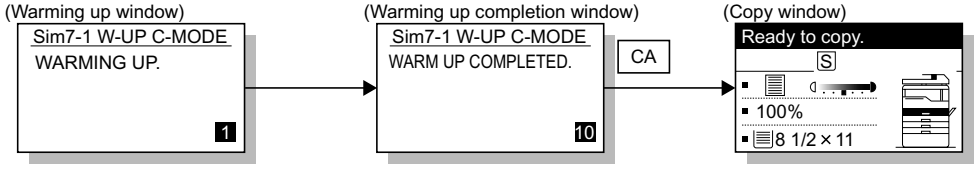
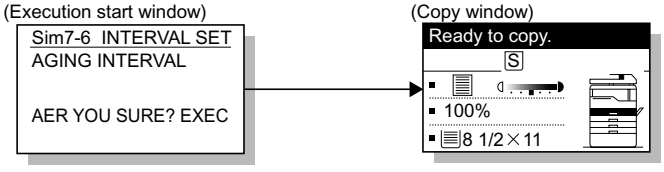
Main code	Sub code	Contents	Remark
02	01	**Single Paper Feeder(SPF)aging** Used to check the operations of the SPF unit and its control circuit. Enter the magnification ratio and press OK or [START] key to drive the SPF unit at the speed corresponding to the setting. (Magnification ratio selection window)  Select the scan magnification ratio (drive speed). This also accords with the magnification ratio and the speed in copying similarly to the OC. The setting range is 50% - 200%. OK/START Key (Execution window)  "EXEC" is highlighted during execution. * When [Interruption] key is press, the simulation is terminated and the machine returns to the sub code input window. * When [CA] key is pressed, the simulation is terminated and the machine exits the simulation mode.	
	02	**SPF sensor status display** Used to display the sensor status in the SPF/RSPF section. An active sensor is highlighted.  Displayed name : Sensor name SPFP :SPF document transportation sensor OCCV :SPF unit (OC cover) open/close sensor POUT :SPF paper exit sensor SPFC :SPF paper feed cover open/close sensor L1 :SPF paper length sensor 1 L2 :SPF paper length sensor 2 W0 :SPF document set sensor W1 :SPF paper width sensor (small) W2 :SPF paper width sensor (middle) W3 :SPF paper width sensor (large) [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window.	
	03	**SPF motor operation check** Used to check the operation of the SPF motor and its control circuit. When this simulation is executed, the initial menu shown below is displayed. Select the magnification ratio to drive the motor. (Initial window = Magnification ratio selection window)  Select the scan magnification ratio (drive speed). This also accords with the magnification ratio and the speed in copying. The setting range is 50% - 200%. OK/START Key (Execution window)  "EXEC" is highlighted during execution. [CA] key: The SPF motor is stopped, and the machine exits the simulation mode. [Interruption] key: The SPF motor is stopped, and the machine returns to the sub code input window.	

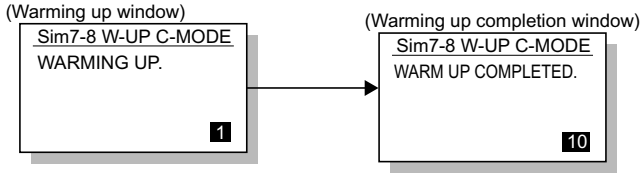
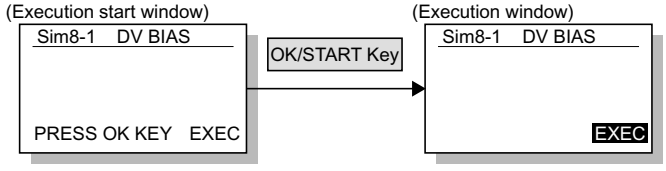
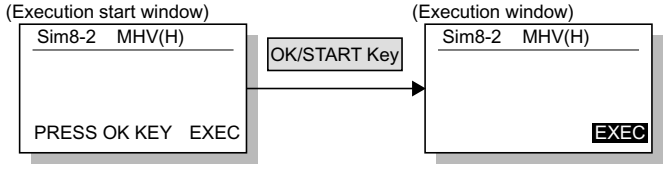
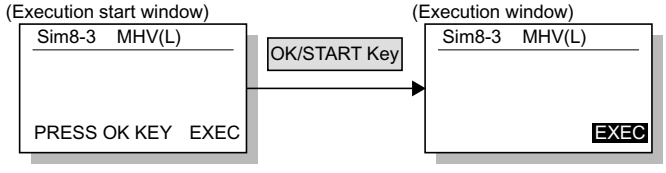
Main code	Sub code	Contents	Remark
02	08	**SPF paper feed solenoid operation check** Used to drive the SPF paper feed solenoid (PSOL) 20 times in the cycle of 500msec of "ON" and 500msec of "OFF." After completion of the process, the machine returns to the sub code input window.  When [Interruption] key is pressed, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode.	
	09	**RSPF reverse solenoid operation check** Used to drive the SPF reverse solenoid (RSOL) 20 times in the cycle of 500msec of "ON" and 500msec of "OFF." After completion of the process, the machine returns to the sub code input window.  When [Interruption] key is pressed, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode.	
	10	**RSPF paper exit gate solenoid operation check** Used to drive the SPF paper exit gate solenoid (GSOL) 20 times in the cycle of 500msec of "ON" and 500msec of "OFF." After completion of the process, the machine returns to the sub code input window.  When [Interruption] key is pressed, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode.	
	11	**SPF PS release solenoid operation check** Used to drive the SPF PS release solenoid (CLH) 20 times in the cycle of 500msec of "ON" and 500msec of "OFF." After completion of the process, the machine returns to the sub code input window.  When [Interruption] key is pressed, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode.	
03	02	**Shifter/job separator sensor status display** Used to monitor the sensors related to the shifter and the job separator and display the sensor status on the LCD. An active sensor is highlighted.  Displayed name :Sensor name SFTHP :Shifter home position sensor JSUP :Job separator upper limit sensor JSDL :Job separator lower limit sensor TRYF :Tray full sensor TRYD : Paper exit sensor * Displayed only when the job separator is installed except for SFTH.	

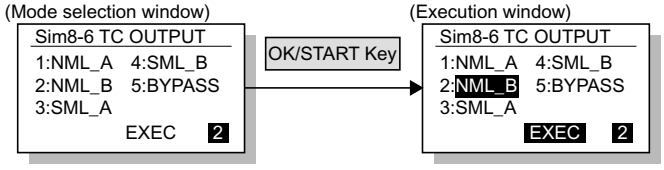
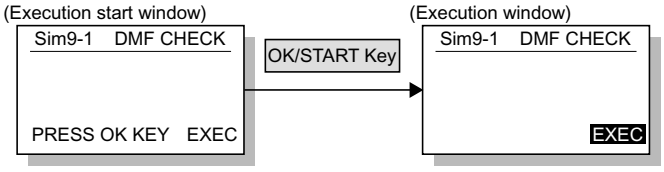
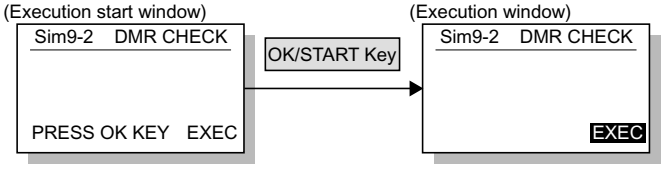
Main code	Sub code	Contents	Remark
03	03	**Shifter operation check** Used to reciprocate the shifter 4 times. During execution, the status of the shifter HP sensor is displayed on the right upper section of the screen. (When the sensor is detected, the display is highlighted.) [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window. * When the above end key is pressed during operation of the shifter, the shifter is returned to the home position before terminating the operations.  	
	04	**Job separator operation check** Used to operate the job separator up and down for 30sec. During operation, the status of the upper limit sensor and the lower limit sensor is displayed on the right upper section of the display. [CA] key: Exits the simulation mode.[Interruption] key: Returns to the sub code input window. When the operation is interrupted, the job separator is shifted to the home position before terminating the simulation similarly to the shifter.  	
	11	**Shifter home position check** Used to check the operations of the shifter HP sensor and the shifter. When this simulation is executed, the initial menu is displayed. By the following key operations, the left operation and the right operation of the home position sensor and the shifter can be executed separately. [←] key: Shifts to R side by the specified steps. [→] key: Shifts to F side by the specified steps. [↑] key: Shift to the home position. [SFTHP] is highlighted when the HP sensor is detected.  [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window.	

Main code	Sub code	Contents	Remark
05	01	**Operation panel display check** <LED/LCD check mode> Used to check the operations (ON, display) of the LED and the LCD on the operation panel. When this simulation is executed, all LED's on the operation panel (including 7SEG) are lighted and checking LCD is started. For the operation check of LCD, the area is divided into two sections; upper section and lower section, and the display cycle of Normal → Dark → Light → Off is repeated in each section. Each display period is 2sec.  When [Interruption] key is pressed in the LED check mode, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode. When [START] key is pressed during LCD display, the machine goes to the key input check mode. <Key input check mode> Used to check that the keys on the operation panel are properly detected. When the machine enters the key input check mode, the initial menu is displayed.  When any key is pressed, the value on the right lower side is counted up. If a key is pressed once, it is not counted again. When [CA] key is pressed for the first time, it is counted. When it is pressed for the second time, the simulation mode is terminated. When [Interrupt] key is pressed for the first time, it is counted. When it is pressed for the second time, the window returns to the sub code input standby window. * Note for the key input check mode [Start] key must be pressed at the end. If it is pressed midway, the simulation judges that the last key is pressed and terminates the check mode. Multi input of tow or more keys is ignored.	

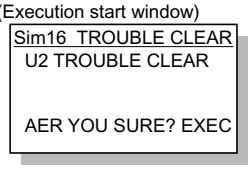
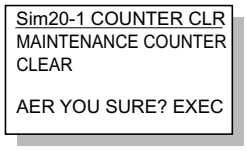
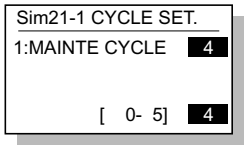
Main code	Sub code	Contents	Remark
05	02	**Fusing lamp and cooling fan operation check** Used to check the operations of the heater lamp and the cooling fan and the peripheral circuits. When this simulation is executed, the following initial menu is displayed.  When this simulation is executed, the fusing lamp repeats ON/OFF 5 times in the cycle of 500ms. The cooling fan motor is rotated during that period. (The cooling fan, however, is rotated for about 8sec.) After completion of the operation, the machine returns to the sub code input window.	
	03	**Copy lamp lighting check** Used to check the operations of the copy lamp and its peripheral circuit. When this simulation is executed, the following initial menu is displayed.  When [OK] key or [START] key is pressed, the copy lamp is lighted for about 5sec. After passing for 5sec, the machine returns to the sub code input window.	
06	01	**Paper feed/transport solenoid operation check** When this simulation is executed, the names of the solenoids which can be operated are displayed. Select a load to be operated with the 10-key. 	
	02	**Resist roller solenoid (RRS) operation check** When this simulation is executed, the machine goes to the execution start window. When [OK] key or [START] key is pressed, the resist roller solenoid (RRS) repeats ON of 500ms and OFF of 500ms 20 times.  When the operation is completed, the machine returns to the sub code input window. When [Interruption] key is pressed, the machine returns to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode.	

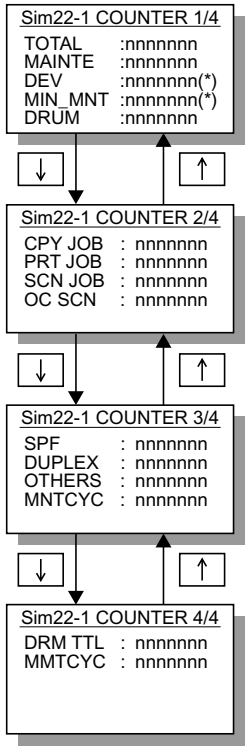
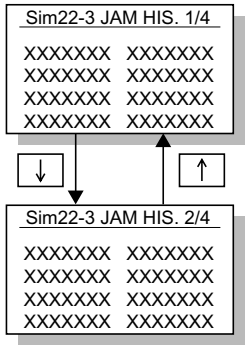
Main code	Sub code	Contents	Remark
06	10	**Main cassette semicircular roller cleaning** Before execution of this simulation, remove the developing cartridges. When this simulation is executed, the load select menu is displayed as shown below. Select a roller cassette to be cleaned with the 10-key. When [OK] key or [START] key is pressed, the semi-circular roller of the specified cassette is rotated halfway round and stopped with the roller facing downward.  When [Interruption] key is pressed after cleaning, the machine returns to the sub code input window and the semi-circular roller returns to the original position. * When TRAY2 - TRAY4 are not installed, they are not displayed. * When another cassette roller is cleaned continuously, press [Interruption] key to return the roller to the original position and restart the simulation. * When the simulation mode is terminated by pressing [CA] key, the roller returns to the original position by the initializing operation.	
07	01	**Warm-up display and aging with jam** Used to measure the warm-up time and execute aging with jam. When this simulation is executed, the following warm-up window is displayed. The time required for starting the warm-up and completing the initializing operation and shifting to the stand-by state is displayed. After completion of warm-up, press [CA] key to exit the simulation mode, allowing normal copy operations. The copy mode at that time is the aging mode with 0sec of intermittent aging.  Canceled by turning off the power or executing a simulation which makes the hardware reset. When the interruption is pressed to shift to the input standby window, the machine does not enter the aging mode.	
	06	**Intermittent aging** Used to execute intermittent aging of 3sec. The set quantity and the mode are optionally selected. When this simulation is executed, the following execution start window is displayed. When [OK] key or [START] key is pressed, the machine exits the simulation mode. Enter a desired coy mode and a desired copy quantity. Press [START] key, and intermittent aging will be started.  It is canceled by turning off the power or executing a simulation with the hard reset.	

Main code	Sub code	Contents	Remark
07	08	**Shifting with warm-up display** Used to measure the warm-up time. When this simulation is executed, the following warm-up window is displayed. The time required for starting the warm-up and completing the initializing operation and shifting to the stand-by state is displayed. * Though [CA] key is pressed, the machine does not enter the aging mode of intermission 0 sec.  Press [CA] key to exit the simulation mode. (The aging function is omitted from SIM 07-01.)	
08	01	**Developing bias output** Used to check the developing bias output. When this simulation is executed, the following execution start window is displayed. When [OK] key or [START] key is pressed, the developing bias signal is turned ON for 30sec. When measuring the actual output value, however, use SIM 25-01. After completion of the process, the machine returns to the sub code input window.  [CA] key: Exits the simulation mode. [Interruption] key: Interrupts output operation and shifts to the sib code input window.	
	02	**Main charger output (Grid = HIGH)** Used to check the main charger output. When this simulation is executed, the following execution start window is displayed. When [OK] key or [START] key is pressed, the main charger is turned on for 30 sec in the grid voltage HIGH mode. After completion of the process, the machine returns to the sub code input window.  [CA] key: Exits the simulation mode. [Interruption] key: Interrupts output operation and shifts to the sub code input window.	
	03	**Main charger output (Grid = LOW)** Used to check the main charger output. When this simulation is executed, the following execution start window is displayed. When [OK] key or [START] key is pressed, the main charger is turned on for 30 sec in the grid voltage LOW mode. After completion of the process, the machine returns to the sub code input window.  [CA] key: Exits the simulation mode. [Interruption] key: Interrupts output operation and shifts to the sub code input window.	

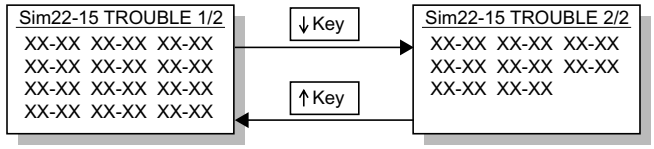
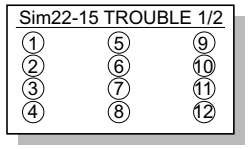
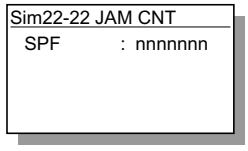
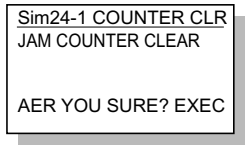
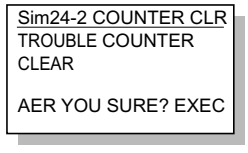
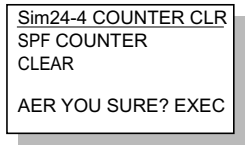
Main code	Sub code	Contents	Remark
08	06	**Transfer charger output** When this simulation is executed, the machine shifts to the following mode select window, and the list of the modes to be outputted is displayed. Select an output mode with 10-key and press [OK] key or [START] key, and the transfer charger output is made for about 30sec in the specified mode.  Window display → Output mode 1:NML_A → Normal size width (front) 2:NML_B → Normal size width (back) 3:SML_A → Small size width (front) 4:SML_B → Small size width (back) * The back is not displayed when DUPEX setting is OFF. * Small size paper is Letter R (A4R) width or below. When an output is completed, the machine shifts to the mode select window. [CA] key: Exits the simulation mode. [Interruption] key: Interrupts the output operation, and shifts to the sub code input window.	
09	01	**Duplex motor forward rotation check** Used to check the duplex motor rotation. The duplex motor is rotated in the normal direction (paper exit direction) for 30sec. After completion of the process, the machine shifts to the sub code input window.  [CA] key: Exits the simulation mode. [Interruption] key: Interrupts the output operation, and shifts to the sub code input window.	
	02	**Duplex motor reverse rotation check** Used to check the duplex motor reverse rotation. The duplex motor is rotated in the reverse direction for 30sec. After completion of the process, the machine shifts to the sub code input window.  [CA] key: Exits the simulation mode. [Interruption] key: Interrupts the output operation, and shifts to the sub code input window.	

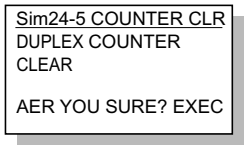
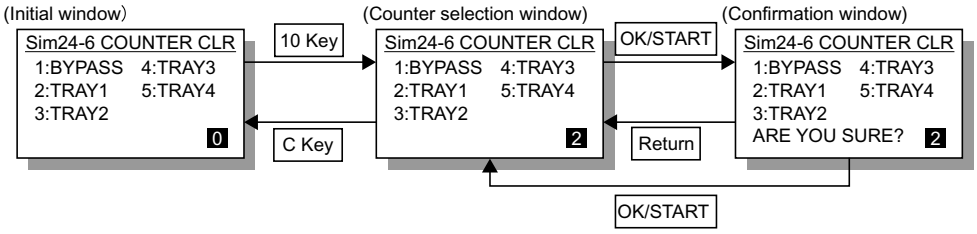
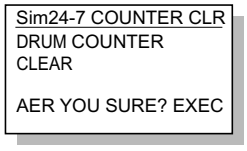
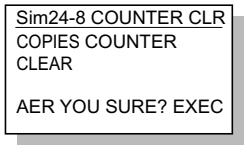
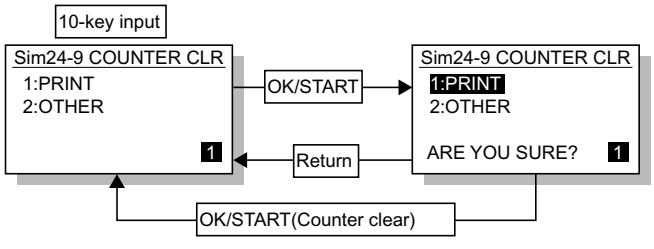
Main code	Sub code	Contents	Remark
09	04	**Duplex motor RPM adjustment** Used to adjust the duplex motor rotation speed. When this simulation is executed, the following setting window is displayed. Enter an input value with 10-key and press [OK] key or [START] key. The setting range is in 1-13 steps and the default is "4" (646.9PPS). (Setting window) Sim9-4 MOTOR SPEED 1:MOTOR SPEED 4 [1-13] 4 Set value : Speed (PPS) 01 : 637.2PPS(Slow) 02 : 640.4PPS 03 : 643.6PPS 04 : 646.9PPS(Default) 05 : 650.1PPS 06 : 653.3PPS 07 : 656.5PPS 08 : 659.8PPS 09 : 662.9PPS 10 : 666.2PPS 11 : 669.4PPS 12 : 672.6PPS 13 : 675.8PPS(Fast) When a value outside the setting range is inputted, it is ignored. [CA] key: Exits the simulation mode. [Interruption] key: Shift to the sub code input window.	Default: 4(646.9PPS)
	05	**Duplex motor switchback time adjustment** Used to adjust the duplex motor switchback time when the motor reverse rotation is controlled. When this simulation is executed, the following setting window is displayed. Enter an input value with 10-key and press [OK] key or [START] key. The setting range is 50-76, and the default is 50. When the adjustment value is increased by 1, the distance up to reverse start is increased by 3 steps in 1-2 phase excitement. Sim9-5 SW BACK TIME 1:SW BACK TIME 50 [50-76] 50 When a value outside the setting range is inputted, it is ignored. [CA] key: Exits the simulation mode. [Interruption] key: Shift to the sub code input window.	Default: 50
10	-	**Toner motor operation** Used to check the operation of the toner motor. When this simulation is executed, the following execution start window is displayed. Press [OK] key or [START] key, and the toner motor is rotated for about 30sec. After completion of the process, the machine shifts to the sub code input window. (Execution start window) Sim10 TONER MOTOR PRESS OK KEY EXEC OK/START Key (Execution window) Sim10 TONER MOTOR EXEC [CA] key: Exits the simulation mode. [Interruption] key: Interrupts the output operation, and shifts to the sub code input window.	
14	-	**Trouble cancel (except for U2)** * Used to cancel EEPROM writing troubles such as H trouble and execute the hard reset. When this simulation is executed, the following execution start window is displayed. Press [OK] key or [START] key to clear the trouble other than U2. (Execution start window) Sim14 TROUBLE CLEAR TROUBLE CLEAR (WITHOUT U2) AER YOU SURE? EXEC	

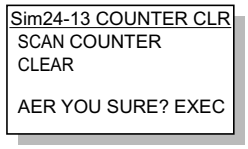
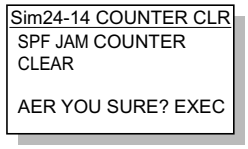
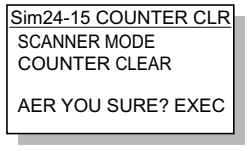
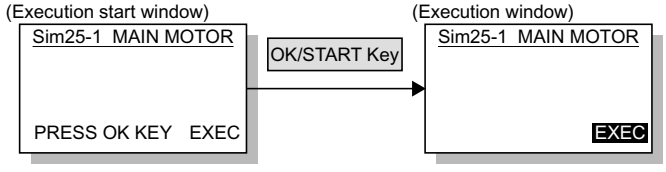
Main code	Sub code	Contents	Remark
16	-	**U2 trouble cancel** * Used to cancel the U2 trouble and execute the hard reset. When this simulation is executed, the following execution start window is displayed. Press [OK] key or [START] key to clear the U2 trouble. (Execution start window)  	
20	01	**Maintenance counter clear** Used to clear the maintenance counter. Press [OK] key or A[START] key on the following window, the maintenance counter is cleared and the machine returns to the sub code input window.  	
21	01	**Maintenance cycle setting** Used to set the maintenance cycle. When this simulation is executed, the current set value is displayed. Enter a desired code with 10-key and press [START] key. The set value is saved in the EEPROM and the machine returns to the sub code input window.  0: 5K (5,000 sheets) 1: 7.5K (7,500 sheets) 2: 10K (10,000 sheets) 3: 25K (25,000 sheets) 4: 50K (50,000 sheets) 5: FREE (999,999 sheets) (Setting range: 0 - 5, Default = 4) [CA] key: Exits the simulation mode. [Interruption] key: Returns to the sub code input window.	Default: 4(50k)

Main code	Sub code	Contents	Remark
22	01	**Counters display**  (*) Either of the following two is displayed depending on the model. DEV: Development counter (EX Japan) MIN_MNT: Mini maintenance counter (Japan) Counter display TOTAL : Total counter MAINTE : Maintenance counter (AR model) DEV : Development counter (AR EX Japan model) MIN MNT : Mini maintenance counter (AR Japan model) DRUM : Drum counter CPY JOB : Copy job counter PRT JOB : Print job counter SCN JOB : Scan job counter OC SCN : OC scan counter SPF : SPF counter DUPLEX : DUPLEX counter OTHERS : Other counter MNTCYC : Maintenance cycle (AR model) DRM TTL :Drum rotation accumulated time MMTCYC : Mini maintenance cycle (AR Japan model) Though SIM26-74 is set to “1: Scan counter is added,” the count is not added to SIM22-01 total counter display. The setting affects only the total counter display in the key operator program.	
	03	**Jam memory display** Used to check the jam kind occurred in the main unit and the SPF. The kinds of jams up to 30 items are displayed sequentially from the latest one. (The oldest one is deleted sequentially.) This display is used for troubleshooting. (If there are extremely many troubles in a position, it may be judged that a repair must be executed.) The kinds and contents of jams to be displayed are as follows.  Kinds of jams and display contents SPPD_ON : SPF paper entry sensor (Not reached) SPPD_OFF : SPF paper entry sensor (Remaining) SOUT_ON : SPF paper exit sensor (Not reached) SOUT_OFF : SPF paper exit sensor (Remaining) POUT_ON : Paper exit sensor (Not reached) POUT_OFF : Paper exit sensor (Remaining) DPX_ON : DUP sensor (Not reached) DPX_OFF : DUP sensor (Remaining) PIN_ON : Paper feed sensor (Not reached) PIN_OFF : Paper feed sensor (Remaining) PIN2_ON : Cassette 2 paper feed sensor (Not reached) PIN3_ON : Cassette 3 paper feed sensor (Not reached) PIN4_ON : Cassette 4 paper feed sensor (Not reached) [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window. ↑, ↓ keys: Switches to another page.	

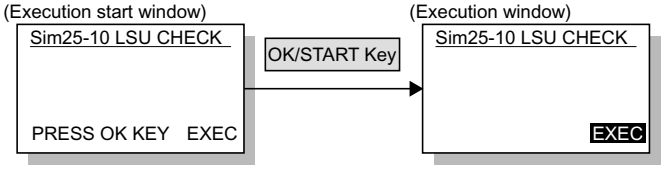
Main code	Sub code	Contents	Remark
22	04	**Jam total counter display** Used to display the jam total counter. Sim22-4 COUNTER JAM : nnnnnn	
	07	**Key operator code display** Used to display the key operator code. Sim22-7 KEY OPE KEY CODE: nnnnn	
	09	**Paper feed counter display** Used to display the paper feed quantity of each paper feed tray. This simulation shows the use frequency of each paper feed section. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window. ↑ , ↓ keys: Switches to another page. Sim22-9 COUNTER 1/2 BYPASS : nnnnnnn TRAY1 : nnnnnnn TRAY2 : nnnnnnn TRAY3 : nnnnnnn ↓Key ↑Key Sim22-9 COUNTER 2/2 TRAY4 : nnnnnnn * TRAY2-TRAY4 are displayed only when they are installed.	
	13	**CRUM destination display** Used to display the CRUM chip destination code saved in the EEPROM. If the display does not match the destination code saved in the CRUM chip, it is judged as an error. * This simulation is valid only for the model with the CRUM chip. Sim22-13 CRUM CRUM TYPE nn Number : Setting (Destination) 00 : Not set. 01 : BTA-A 02 : BTA-B 03 : BTA-C 04 : BTA-E 12 : AL series 99 : Conversion	
	14	**P-ROM version display** Sim22-14 ROM VER1/2 S/N : ---------- MCU : --.-- IMC : --.-- PNL : --.-- Sim22-14 ROM VER2/2 FAX : --.-- S/N :Production serial number MCU :Main unit program version IMC :IMC program version PNL :Panel program version FAX :FAX program version The version of the option board which is not installed is not displayed.	

Main code	Sub code	Contents	Remark
22	15	**Trouble memory display** The latest 20 troubles are displayed. (The oldest one is overwritten sequentially.) [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window. ↑ , ↓ keys: Switches to another page.  The display sequence is as shown below.  In this case, (1) is the latest one and (12) is the oldest.	
	22	**SPF jam counter display** Used to display the SPF JAM counter. When [Interruption] key is pressed, the machine goes to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode. 	
24	01	**Jam total counter clear** When this simulation is executed, the clear confirmation window is displayed as shown below. When [OK] key or [START] key is pressed, the jam total count and the jam memory are cleared and the machine shifts to the sub code input window. 	
	02	**Trouble memory clear** Used to clear the trouble memory and the trouble history data in the EEPROM. When [Interruption] key is pressed, the machine shifts to the sub code input window. When [CA] key is pressed, the machine exits the simulation mode. 	
	04	**SPF counter clear** Used to clear the SPF paper feed counter.  [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	

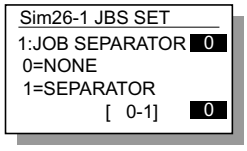
Main code	Sub code	Contents	Remark
24	05	**Duplex print counter clear** Used to clear the duplex print counter.  [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	06	**Paper feed counter clear** Used to clear the paper feed counter data in each paper feed section.  * TRAY2-TRAY4 are displayed only when they are installed. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	07	**Drum counter clear** Used to clear the drum counter and the drum rotating time.  [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	08	**Copy counter clear** Used to clear the copy counter.  [OK] or [START] key: Clears the copy counter and shifts to the sub code input window. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	09	**Printer counter clear** Used to clear the printer counter and other counters. Select a counter to be cleared and press [OK] key or [START] key. The confirmation window is displayed. Press [OK] key or [START] key again, and the specified counter is cleared and the machine returns to the initial window.  [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	

Main code	Sub code	Contents	Remark
24	13	**Scanner counter clear** Used to clear the scanner counter.  [OK] or [START] key: Clears the scanner counter and shifts to the sub code input window. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	14	**SPF jam total counter clear** Used to clear the SPF jam total counter.  [OK] or [START] key: Clears the SPF jam total counter and shifts to the sub code input window. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	15	**Scanner mode counter clear** Used to clear the scanner mode counter.  [OK] or [START] key: Clears the scanner mode counter and shifts to the sub code input window. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
25	01	**Main motor operation check (Cooling fan motor rotation check)** When [OK] key or [START] key is pressed, the main motor (as well as the duplex motor in the case of the duplex model) is rotated for 30 sec. If the developing unit is installed to save toner consumption at that time, the developing bias, the main charger, and the grid are also outputted. In addition, since laser discharge is required when the motor is stopped, the polygon motor is also operated. Check if the developing unit is installed or not. If it is not installed, the previous high voltage is not outputted and only the motor is rotated. After completion of 30sec operation, the machine shifts to the sub code input window. * This simulation must not be executed with the door open/close switch forcibly turned ON.  After completion of the process, the machine shifts to the sub code input window. [CA] key: Exits the simulation mode. [Interruption] key: Interrupts the output operation, and shifts to the sub code input window.	

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Remark</th></tr>
<tr><td>25</td><td>10</td><td>Polygon motor operation check

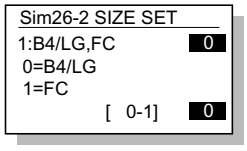
When [OK] or [START] is pressed, the polygon motor is rotated for 30sec.
 

After completion of the process, the machine shifts to the sub code input window.
[CA] key: Exits the simulation mode.
[Interruption] key: Interrupts the output operation, and shifts to the sub code input window.</td><td></td></tr>
<tr><td>26</td><td>01</td><td>Job separator setting

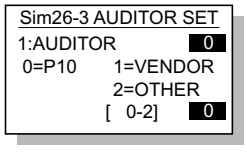
Used to set YES/NO of installation of the hob separator.
After installation of the job separator, setting must be manually set to YES.
 

0 : No job separator
1 : Job separator provided

[CA] key: Exits the simulation mode. (When setting is changed, the machine exits the simulation mode and performs the hard reset.)
[Interruption] key: Shifts to the sub code input window. (When setting is changed, it is invalid.)
[START] key: Setting contents are saved in the EEPROM and the machine shifts to the code input window.
(When setting is changed, the machine does not shift to the code input window.)</td><td></td></tr>
<tr><td></td><td>02</td><td>Size setting

Used to set Enable/Disable of FC (8.5" x 13") size detection.
Detection size when FC (8.5" x 13") size document is used.
<table>
<tr><th></th><th>Unit to be used</th><th>Destination</th><th>Document size</th><th colspan="2">Set value</th></tr>
<tr><th></th><th></th><th></th><th></th><th>0(Disable)</th><th>1(Enable)</th></tr>
<tr><td rowspan="4">Document</td><td rowspan="4">SPF</td><td rowspan="2">EX Japan AB series(FC)</td><td>FC(8.5"x13")</td><td>B4</td><td>FC(8.5"x13")</td></tr>
<tr><td>B4</td><td>B4</td><td>FC(8.5"x13")</td></tr>
<tr><td rowspan="2">Inch series(FC)</td><td>FC(8.5"x13")</td><td>LG(8.5"x14")</td><td>FC(8.5"x13")</td></tr>
<tr><td>LG(8.5"x14")</td><td>LG(8.5"x14")</td><td>FC(8.5"x13")</td></tr>
</table>
* For destinations other than the above, this setting is invalid.
 

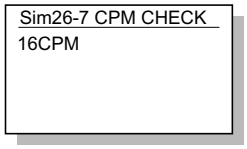
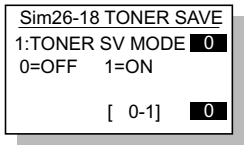
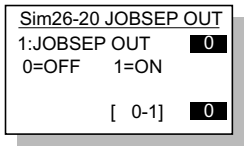
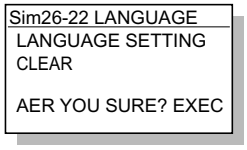
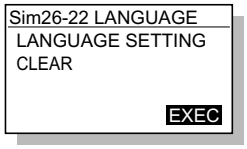
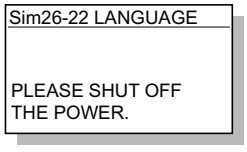
Code: Setting
0 : Detection disabled
(Default for destinations other than below)
1 : FC detection enabled
(Default for SCA/Philippines)</td><td>Default:
00</td></tr>
<tr><td></td><td>03</td><td>Auditor setting

Used to set the auditor.
 

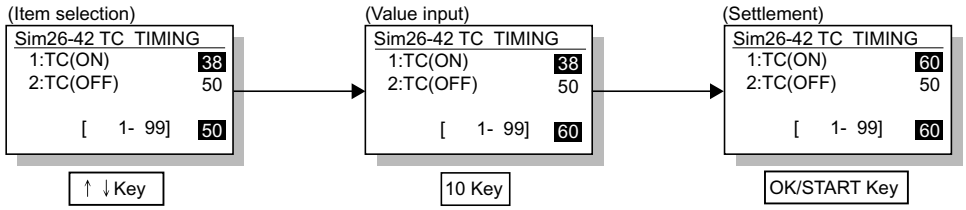
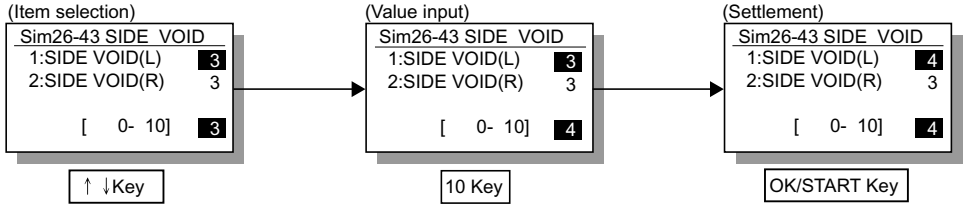
Code: Mode
0 : Built-in auditor mode
1 : Coin vendor
2 : Other

* When the coin vendor mode is selected:
1. Sort auto select is OFF.
2. For Japan, the duplex copy use inhibition setting is ON (inhibited).
3. When the auditor mode exclusive-setting is ON (manual paper feed inhibited) and the standard tray is set to the manual feed tray, the standard tray setting is set to the main tray.</td><td>Default:
0 (P10)</td></tr>
</table>

Main code	Sub code	Contents	Remark
26	04	**Copier duplex setting** Used to set YES/NO of duplex setting. This must be set to ON when the duplex unit is installed. If this setting is set to OFF on the duplex machine, the duplex motor dose not rotate and paper is not discharged normally, resulting in a paper jam. Sim26-4 DUPLEX SET 1:DUPLEX 0 0=OFF 1=ON [0-1] 0 Code: Duplex setting 0 : OFF 1 : ON	
	05	**Count mode setting** Used to set the count-up number of the total counter, the developer counter, and the maintenance counter individually when a special paper (A3/WLT/8K) is passed. When this simulation is executed, the current set value is displayed. Sim26-5 COUNT MODE 1:COUNT MODE 1 [0-3] 1 Setting / Total/Developer / Maintenance 0 / +2 / +2 1 / +1 / +2 2 / +2 / +1 3 / +1 / +1 [1]-[3] (Default:[0]) Enter a value with 10-key, and press [OK] key or [START] key to save the current adjustment value to the EEPROM. The machine returns to the sub code input window.	Default: 0 (+2)
	06	**Destination setting** Used to set the destination of the main unit. When this simulation is executed, the code number of currently set destination is displayed. Sim26-6 DESTINATION 1:DESTINATION 0 0=JAPAN [0-6] 0 Code :Setting 0=JAPAN : Japan AB series 1=INCH : Inch series 2=AB : Ex Japan AB series 3=INCH(FC) : Ex Japan inch series (FC) 4=AB(FC) : Ex Japan AB series (FC) 5=CHINESE : China (EX Japan AB series + Chinese paper support) 6=TAIPEI : Taiwan (EX Japan AB series + Chinese paper support) (Setting range 0 - 6) [0] - [6] (Default: Depends on the model.) Enter a value with 10-key, and press [OK] key or [START] key, and the current adjustment value is saved in the EEPROM. [CA] key: Exits the simulation mode. (When setting is changed, the machine exits the simulation mode and performs the hard reset.) [Interruption] key: Shifts to the sub code input window. (When setting is changed, it is invalid.) [START] key: Setting contents are saved in the EEPROM and the machine shifts to the code input window. (When setting is changed, the machine does not shift to the code input window.) * When this setting is changed, the following adjustment values and the set values are automatically changed according to the set destination. O SIM46-19 (γ table setting) O SIM46-30 (AE limit setting) O Paper size (A4 for AB series, LT for inch series) O Maintenance cycle (Returns to the default (Japan/Ex Japan).) O Mini maintenance cycle (Only when setting is changed to Japan.)	Default: 1

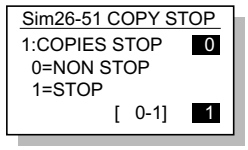
Main code	Sub code	Contents	Remark
26	07	**Machine condition check** When this simulation is executed, the copy speed of the machine is displayed.  Displayed CPM list 14CPM 16CPM 20CPM [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	18	**Toner save mode setting** Used to switch ON/OFF of the toner save mode. When this simulation is executed, the current set value is displayed. Enter a set value with 10-key and press [OK] key or [START] key. The set value is saved in the EEPROM. * When this setting is changed, the toner save setting of the key operator program is also changed accordingly.  Code: Setting 0: Toner save OFF 1: Toner save ON [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 0 (Toner save OFF)
	20	**Job separator paper exit mode setting** Used to set the paper exit mode of the job separator. * The purpose is to allow the simplified check when the job separator option is installed. It is valid only during the adjustment simulation. Without installing a printer or a FAX machine, paper is discharged to the upper stage to check if there is no problem or not. If SIM26-01 is set to "Job separator not installed," paper is discharged to the lower stage regardless of this setting.  Code: Setting 0: Lower tray 1: Upper tray [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 0 (OFF)
	22	**Language setting clear** Used to clear the language setting. The scanner head is shifted to the fixing lock position. (1) Initial display  (2) Press [OK]or [START] key.(Execution is starred.)  (3) After completion of counter clear and shifting to the lock position 	

Main code	Sub code	Contents	Remark
26	30	**CE mark conformity control ON/OFF** Used to set Yes/No of CE mark conformity. When this simulation is executed, the current set value is displayed. Enter a value with 10-key and press [OK] key or [START] key. The set value is saved to EEPROM and the machine returns to the sub code input window. Sim26-30 CE MARK 1:CE MARK CTRL 0 0=OFF 1=ON [0-1] 0 Code: Setting 0 : CE mark support control OFF (*Default of 100V series) 1 : CE mark support control ON (*Default of 200V) [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 1 (ON)
	31	**Auditor mode exclusive setup** Used to set whether paper feed is allowed from the manual paper feed tray of not when the auditor is set to the coin vendor mode. Sim26-31 AUDITOR 1:AUDITOR 1 [0-2] 1 Code: Setting 0 : Exclusive setting OFF (Manual paper feed enable) 1 : Exclusive setting ON (Manual paper feed disable) (Default) 2 : Exclusive setting OFF (Manual paper feed enable) + A3/WLT charge * When this setting is set to ON, if the auditor mode is the coin vendor mode and the standard tray setting is set to the manual paper feed tray, the standard tray setting is set to the main tray. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 1 (ON)
	36	**Cancel of stop at maintenance life over** Used to set YES/NO of cancel of stop when the maintenance counter life is over. Sim26-36 MAINTESTOP 1:MAINTE OVER 1 [0-1] 1 Code: Setting 0 : Stop 1 : Stop cancel (Default) [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 1 (Stop cancel)
	37	**Cancel of stop at developer life over** Used to set YES/NO of cancel of stop when the developer counter life is over. Sim26-37 DEVE STOP 1:DEV LIFE OVER 1 [0-1] 1 Code: Setting 0 : Stop 1 : Stop cancel (Default) [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	
	39	**Memory capacity check** Used to check the capacity of the image memory (SDRAM) installed to the MCU PWB and the capacity of the IMC compression memory. Sim26-39 MEMORY CHK MCU : 32Mbyte IMC : 16Mbyte There are two kinds of the displayed image memory capacity: 16MB and 32MB. The standard capacity of the IMC compression memory is 16B. * It is not displayed when IMC is not installed. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	

Main code	Sub code	Contents	Remark
26	42	**Transfer ON/OFF timing control setting** Used to set the ON/OF timing of the transfer charger (TC) individually. Select an item to be changed with the cross key, and change the set value to a desired value, and press [OK] key or [START] key. The entered value is saved to the EEPROM and the machine shifts to the sub code input window.  Variation in the adjustment value 1:TC(ON) — PS release → TC ON | Set value | Time (ms) | Difference (ms) | |---|---|---| | 99 | 442 | +122 | | • • • | • • • | • • • | | 50 | 344 | +24 | | • • • | • • • | • • • | | 38 | 320 | Default | | • • • | • • • | • • • | | 1 | 246 | -74 | 2:TC(OFF) — PIN OFF → TC OFF | Set value | Time (ms) | Difference (ms) | |---|---|---| | 99 | 402 | +98 | | • • • | • • • | • • • | | 51 | 306 | +2 | | • • • | • • • | • • • | | 49 | 302 | -2 | | • • • | • • • | • • • | | 1 | 206 | -98 | * Setting range is 1 - 99. When the set value is increased by 1, the timing is increased by 2ms. * The default (38) of transfer ON timing means 320ms from PS release. The default (50) of the transfer OFF timing means304ms from P-IN OFF. [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 38 (TC ON) 50 (TC OFF)
	43	**Side void amount setting** Used to set the left and right side void amounts. The left side void amount and the right side void amount can be set individually. Select an item to be changed with the cross key and change the set value to a desired value. The setting range is 0-10. When the value is increased by 1, the void amount is increased by 0.5mm. The default is 5 (= 2.5mm).  Display: Set item 1:SIDE BOID(L) : Left side void amount setting 2:SIDE VOID(R) : Right side void amount setting [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 5 (Voide amount: 2.5mm)

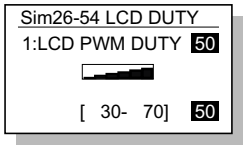
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Remark</th></tr>
<tr><td>26</td><td>51</td><td>Copy temporary stop function setting

Used to set whether copying is stopped temporarily when the paper exit tray full is detected. When the electronic sort function is used, paper exit of 250 sheets (*1) or more can be used for one copy job. If, at that time, copying (paper discharge) is continued with the tray full, a paper exit jam may occur. To avoid this, copying is temporarily stopped by this setting.

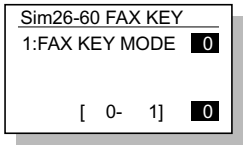
 
Display: Setting
0 : Temporary stop cancel
1 : Temporary stop (Default)

(*1) 150 sheets when the job separator is installed.
[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
1 (Temporary stop)</td></tr>
<tr><td></td><td>54</td><td>LCD contrast PWM duty setting

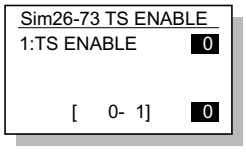
Used to set the PWM duty (brightness) at the center value of LCD contrast.
* Setting range: 30-70(Default: 50)
* When [OK] key or [START] key is pressed, the set value of LCD contrast is immediately reflected.

 
[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
50</td></tr>
<tr><td></td><td>60</td><td>FAX mode key Enable/Disable setting

Used to set Enable/Disable of the FAX mode key when the FAX PWB is not installed.
Though this setting is set to Enable, if the FAX PWB is not installed, a message of "FAX PWB is not installed" is displayed.
* When the FAX PWB is installed, the display shifts to the FAX window regardless of this setting.

 
<table><tr><td></td><td colspan="2">FAX PWB</td></tr><tr><td>Setting</td><td>Yes</td><td>No</td></tr><tr><td>(Enable)</td><td>FAX window display</td><td>FAX not-installed display</td></tr><tr><td>(Disable)</td><td>FAX window display</td><td>Error beep sound</td></tr></table>
[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
0 (Enable)</td></tr>
<tr><td></td><td>73</td><td>Toner save setting display/non-display

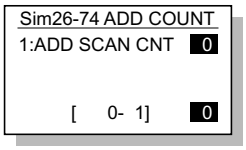
Used to set Enable/Disable of the toner save setting in the key operator program. If this setting is set to Enable (1), the toner save setting appears in the key operator program to allow setting.

 
Display: Setting
0 : Disable
1 : Enable

[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
01(Enable)</td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Remark</th></tr>
<tr><td>26</td><td>74</td><td>Total counter display change setting

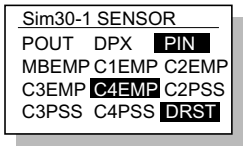
Used to set whether the scanner counter value is added to the total counter display in the key operator program.

0 : Scan counter not added
1 : Scan counter added

[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
0 (Scan counter not added)</td></tr>
<tr><td>30</td><td>01</td><td>Paper sensor status display

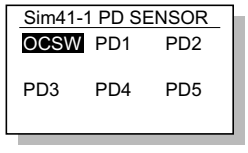
Used to display the list of paper sensor status on the LCD. An active sensor is highlighted.
The display items and corresponding sensors are shown below.

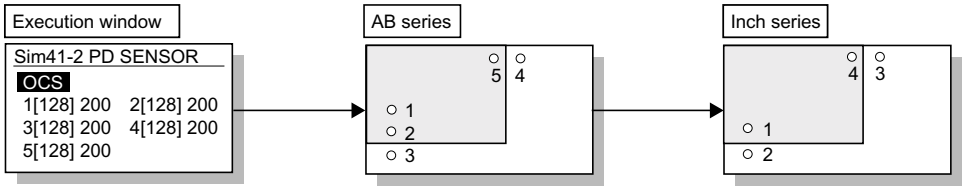
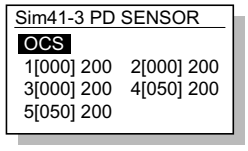
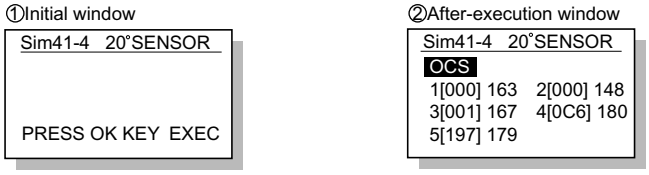
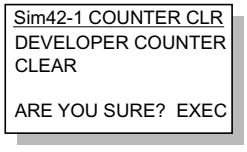
Display : Corresponding sensor
POUT : Paper exit sensor
DPX : DUPLEX sensor
PIN : Paper entry sensor
MBEMP : Manual feed paper sensor
C1EMP : No. 1 tray paper sensor
C2EMP : No. 2 tray paper sensor
C3EMP : No. 3 tray paper sensor
C4EMP : No. 4 tray paper sensor
C2PSS : No. 2 tray paper feed sensor
C3PSS : No. 3 tray paper feed sensor
C4PSS : No. 4 tray paper feed sensor
DRST : New drum sensor (AL model only)

When a multi-stage cassette is not installed as an option, the corresponding sensor name is not displayed.</td><td></td></tr>
<tr><td>41</td><td>01</td><td>Document size detection photo sensor check

Used to check the operation of the document sensor.
When this simulation is executed, the status of the document sensor is displayed.
An active sensor display is highlighted.

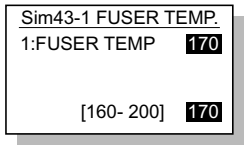
 

<table><tr><th colspan="3">OC cover open/close sensor status</th><th colspan="3">Document sensor status</th></tr><tr><td>OCSW</td><td>Open</td><td>Close</td><td>PD1 - PD5</td><td>Document NO</td><td>Document YES</td></tr><tr><td></td><td>Highlighted</td><td>Normal display</td><td></td><td>Normal display</td><td>Highlighted</td></tr></table>
* For AB series, PD1-PD5; for inch series, PD1 - PD4.</td><td></td></tr>
</table>

Main code	Sub code	Contents	Remark
41	02	**Document size detection photo sensor detection level adjustment** When this simulation is executed, the detection level of the OC document size detection sensor is displayed. (Real time display) Place white paper of A3 or WLT on the document table and press [OK] key or START key with the OC cover open. When [START] key is pressed, "EXEC" is highlighted and the document detection level at that moment is saved in the EEPROM. (The saved value is used as the reference for the following document size detection control.)  The values are displayed in the range of 0 - 255. 0 (Black) - 255 (White) The value in [ ] indicates the adjustment threshold value. "EXEC" is highlighted during execution. OCSW: Original cover status. Open: Highlighted. Close: Normal display 1 - 5: PD sensor detection level	
	03	**Document size detection photo sensor light receiving/detection level check** When this simulation is executed, the light receiving level of the document detection photo sensor is displayed. (Real time display) The values in parentheses of sensor 4 and 5 are the threshold values of adjustment at SIM41-04. Since sensors 1 and 3 are not provide with the threshold value of detection at SIM41-04, "0" is always displayed. 	
	04	**Detection level adjustment when the document size is settled (15 degrees - 20 degrees)** Set the OC cover to the document size settled state (15 degrees - 20 degrees), and press [OK] key.  The detection level under the document size settled state is saved in the EEPROM, and the value is displayed in [ ]. * The document size settled state means the point when the open/close sensor (OCSW) is switched from ON (highlighted) to OFF (normal display).	
42	01	**Developing counter clear** Used to clear the developing counter. When this simulation is executed, the confirmation window is displayed to confirm to clear or not. To clear, press [OK] key or [START] key. Not to clear, press [Interruption] key or [CA] key to exit the simulation mode.  [CA] key: Exits the simulation mode. [Interruption] key: Shifts to the sub code input window.	

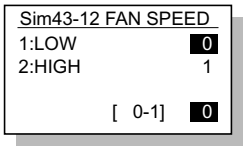
<table>
<tr><th>Main code</th><th>Sub code</th><th>Contents</th><th>Remark</th></tr>
<tr><td>43</td><td>01</td><td>Fusing temperature setting (Normal copy)

Used to set the fusing temperature in normal copy.
When this simulation is executed, the current set value is displayed.
Every time when [→] key is pressed, the set value is increased by 5°C from the current display temperature.
Every time when [←] key is pressed, the set value is decreased by 5°C from the current display temperature. Enter a desired set value (temperature), and press [OK] key or [START] key. The set value is caved in the EEPROM.
Setting can be made in the range of 160°C to 200°C in the increment of 5°C.

 
0 : 160℃
1 : 165℃
2 : 170℃ (Default)
3 : 175℃
4 : 180℃
5 : 185℃
6 : 190℃
7 : 195℃
8 : 200℃

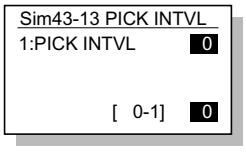
[CA] key: Exits the simulation mode.
[Interruption] key: Shifts to the sub code input window.</td><td>Default:
2(170°C)</td></tr>
<tr><td></td><td>12</td><td>Standby mode fusing fan rotation setting

When this simulation is executed, the currently set code number is displayed.
Select a mode to be changed with the cross key and enter a set value with 10-key.
Enter the mode number to be selected with 10-key and press [OK] key or [START] key. The set value is saved in the EEPROM.

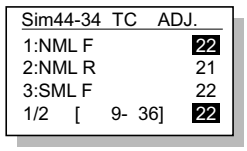
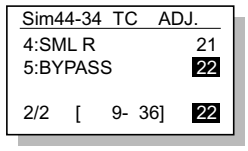
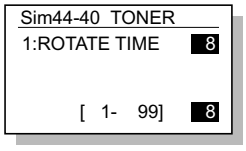
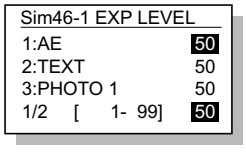
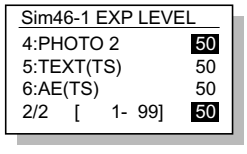
 
FAN rotation speed
0 : Low speed rotation
1 : High speed rotation

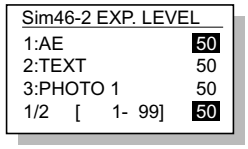
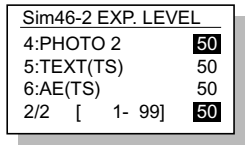
<table><tr><td colspan="2">Setting mode</td></tr><tr><td>LOW</td><td>Setting in normal temperature adjustment (190°C or below) Default = 0 (Low speed rotation)</td></tr><tr><td>HIGH</td><td>When the fusing temperature is 190°C or above,Default = 1 (High speed rotation)</td></tr></table></td><td>Default:
LOW:0(Low speed rotation)
HIGH:1(High speed rotation)</td></tr>
<tr><td></td><td>13</td><td>Fusing paper interval control allow/inhibit setting

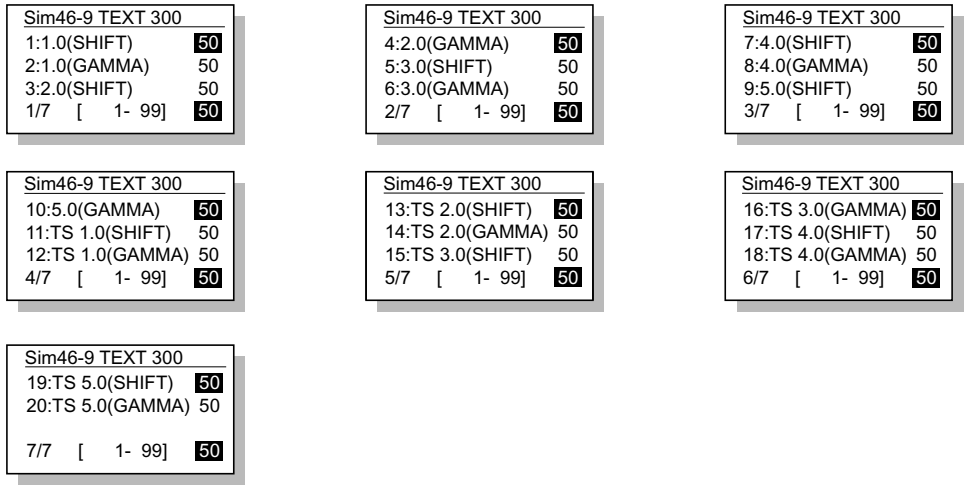
Used to change the paper feed timing of 21st sheet or later to A3 or WLT (depending on the destination setting) when in multi copy/print of narrow width sheets.
When this simulation is executed, the current set number is displayed. Enter a code number and press [START] key. The entered number is saved in the EEPROM and the machine returns to the sub code input window.

 
Code: Setting
0: Disable (Default)
1: Enable

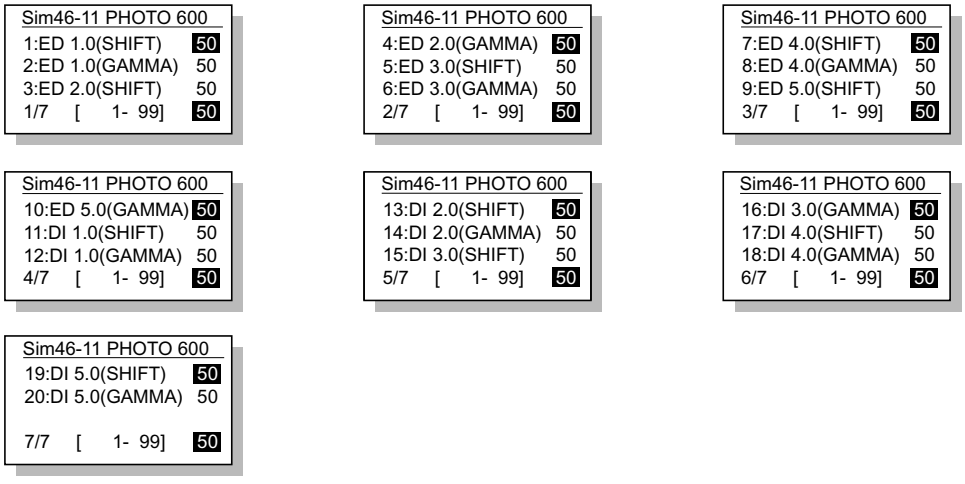
<Applicable paper>
1) Cassette paper feed: A4R,B5R,8-1/2"x14",8-1/2"x13",8-1/2"x11",A5,INV
2) Manual paper feed: A4R,B5R,8-1/2"x14",8-1/2"x13",8-1/2"x11",A5,INV,16KRÅ
* A5 is applicable to manual paper fed only in EX Japan AB series.</td><td>Default:
0 (Disadble)</td></tr>
</table>

Main code	Sub code	Contents	Remark
44	34	**Transfer current setting** Used to set the transfer current value. When this simulation is executed, the list of modes and the current set value are displayed on the LCD.   Select a set item with the cross key and enter a set value with 10-key. Press [OK] key or [START] key, and the set value is saved in the EEPROM. The setting range is 90µA - 360µA. The calculation formula is "Set value x 10 (µA)." For example, in order to set the transfer current value to 200µA, set the adjustment value to "20." Display mode : Setting mode NML F : Normal size paper (Front) [22] NML R : Normal size paper (Back) [21] SML F : Small size paper (Front) [22] SML R : Small size paper (Back) [21] BYPASS : Manual paper pass [22] [ ]: Default * Small size paper means A4R (Letter R) width or less. * When selecting the special size of tray, the normal size width setting is made.	Default: 21(NML R, SML R) 22(NML F, SML F, BYPASS)
	40	**Setting of rotation time before toner supply** Used to set the time from starting rotation of the main motor to starting toner supply when initializing after turning on the power.  [1] - [99] (Default : [8] (Unit: sec)) Enter a set value with10-key and press [START] key. The set value is saved in theEEPROM and the machine returns to the sub code input window.	Default: 8sec
46	01	**Copy density adjustment(300dpi)** Used to set the copy density foe each exposure mode. When this simulation is executed, the list of the setting items and the current set value are displayed. Select an item to be changed with [↑] and [↓] keys and enter the adjustment value with 10-key. The setting range is 1 - 99. When [←] or [→] key is pressed, the page is changed,. Enter the adjustment value with 10-key and press [OK] key. The entered value is saved in the EEPROM and the machine shifts to the copy window. Sample copying can be performed during the simulation   Window display : Adjustment mode 1:AE : AE MODE (300dpi) 2:TEXT : TEXT MODE (300dpi) 3:PHOTO 1 : PHOTO MODE (Error diffusion) 4:PHOTO 2 : PHOTO MODE (Dither) 5:TEXT (TS) : TS MODE (TEXT) (300dpi) 6:AE (TS) : TS MODE (AE) (300dpi)	

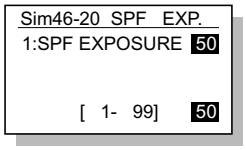
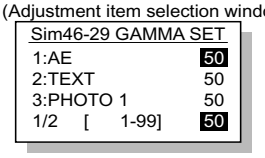
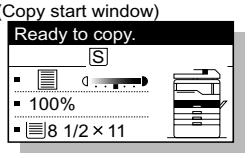
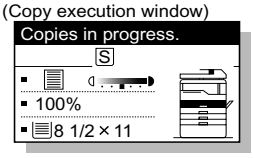
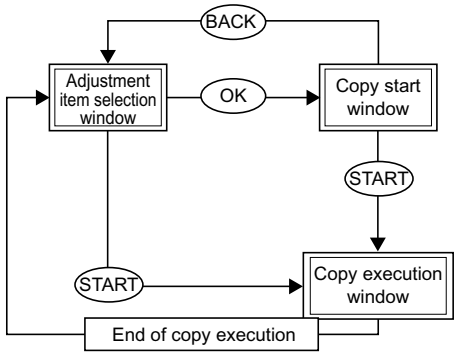
Main code	Sub code	Contents	Remark
46	02	**Copy density adjustment (600dpi)** Used to set the copy density for each mode.   Window display : Adjustment mode 1:AE : AE MODE (600dpi) 2:TEXT : TEXT MODE (300dpi) 3:PHOTO 1 : PHOTO MODE (Error diffusion) 4:PHOTO 2 : PHOTO MODE (Dither) 5:TEXT (TS) : TS MODE (TEXT) (600dpi) 6:AE (TS) : TS MODE (AE) (600dpi) Used to set the copy density for each mode. When this simulation is executed, the list of the setting items and the current set value are displayed. Select an item to be changed with [↑] and [↓] keys and enter the adjustment value with 10-key. The setting range is 1 - 99. When [←] or [→] key is pressed, the page is changed. Enter the adjustment value with 10-key and press [OK] key. The entered value is saved in the EEPROM and the machine shifts to the copy window. Sample copying can be performed during the simulation.	

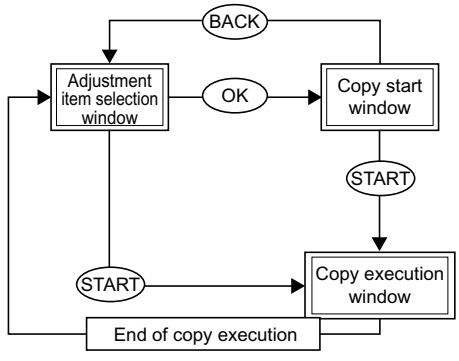
Main code	Sub code	Contents	Remark
46	09	**Copy exposure level adjustment, individual setting (Text) 300dpi** Used to adjust the shift amount and the slanting value for each density level of 1-5 when the exposure mode is TEXT (including TS). • For the shift amount, the gamma (gradation) is common. The whole sections are made brighter or darker. When the shift amount is increased, the brightness is decreased. When the shift amount is decreased, the brightness is increased. • The slanting value changes the gamma (gradation). When the set value is increased, the gamma is increased to provide a higher contrast. (Clear black and white) When the set value is decreased, the gamma is decreased to provide a lower contrast. (Higher gradation) Select an adjustment mode with the cross key, and enter the set value with 10-key. The adjustment range is 1 - 99. When [←] or [→] key is pressed, the page is changed. The shift amount and the slanting value can be individually set for each of five levels of density for each of TEXT/TS and TEXT. Therefore, there are 20 patterns of adjustment modes.  1: 1.0(SHIFT) → TEXT density 1 shift amount 2: 1.0(GAMMA) → TEXT density 1 gamma value 3: 2.0(SHIFT) → TEXT density 2 shift amount 4: 2.0(GAMMA) → TEXT density 2 gamma value 5: 3.0(SHIFT) → TEXT density 3 shift amount 6: 3.0(GAMMA) → TEXT density 3 gamma value 7: 4.0(SHIFT) → TEXT density 4 shift amount 8: 4.0(GAMMA) → TEXT density 4 gamma value 9: 5.0(SHIFT) → TEXT density 5 shift amount 10: 5.0(GAMMA) → TEXT density 5 gamma value 11: TS 1.0(SHIFT) → TS TEXT density 1 shift amount 12: TS 1.0(GAMMA) → TS TEXT density 1 gamma value 13: TS 2.0(SHIFT) → TS TEXT density 2 shift amount 14: TS 2.0(GAMMA) → TS TEXT density 2 gamma value 15: TS 3.0(SHIFT) → TS TEXT density 3 shift amount 16: TS 3.0(GAMMA) → TS TEXT density 3 gamma value 17: TS 4.0(SHIFT) → TS TEXT density 4 shift amount 18: TS 4.0(GAMMA) → TS TEXT density 4 gamma value 19: TS 5.0(SHIFT) → TS TEXT density 5 shift amount 20: TS 5.0(GAMMA) → TS TEXT density 5 gamma value Select an item to be changed and set a desired adjustment value. Press [OK] key, and the machine shifts to the copy window. When [START] key is pressed at that time, copying is performed with the previous adjustment value and the result can be checked.	The value on the example (50) is not the default value.

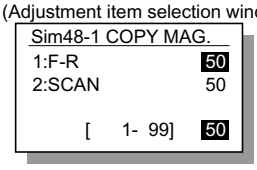
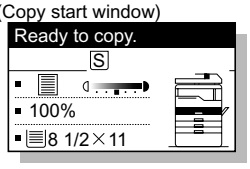
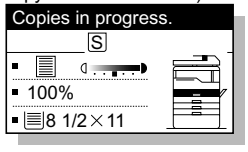
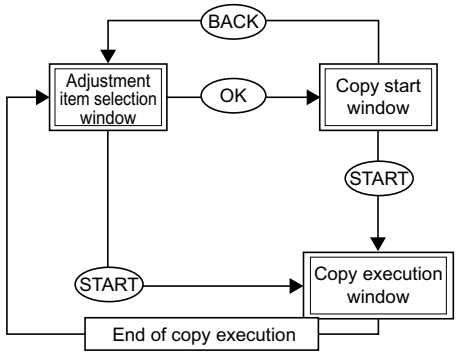
Main code	Sub code	Contents	Remark
46	10	**Copy exposure level adjustment, individual setting (Text) 600dpi** Used to adjust the shift amount and the slanting value for each density level (1-5) when the exposure model is TEXT (including TS). • For the shift amount, the gamma (gradation) is common. The whole sections are made brighter or darker. When the shift amount is increased, the brightness is decreased. When the shift amount is decreased, the brightness is increased. • The slanting value changes the gamma (gradation). When the set value is increased, the gamma is increased to provide a higher contrast. (Clear black and white) When the set value is decreased, the gamma is decreased to provide a lower contrast. (Higher gradation) Select an adjustment mode with the cross key, and enter the set value with 10-key. The adjustment range is 1 - 99. When [←] or [→] key is pressed, the page is changed. The shift amount and the slanting value can be individually set for each of five levels of density for each of TEXT/TS and TEXT. Therefore, there are 20 patterns of adjustment modes. Sim46-10 TEXT 600 1:1.0(SHIFT) 50 2:1.0(GAMMA) 50 3:2.0(SHIFT) 50 1/7 [1- 99] 50 Sim46-10 TEXT 600 4:2.0(GAMMA) 50 5:3.0(SHIFT) 50 6:3.0(GAMMA) 50 2/7 [1- 99] 50 Sim46-10 TEXT 600 7:4.0(SHIFT) 50 8:4.0(GAMMA) 50 9:5.0(SHIFT) 50 3/7 [1- 99] 50 Sim46-10 TEXT 600 10:5.0(GAMMA) 50 11:TS 1.0(SHIFT) 50 12:TS 1.0(GAMMA) 50 4/7 [1- 99] 50 Sim46-10 TEXT 600 13:TS 2.0(SHIFT) 50 14:TS 2.0(GAMMA) 50 15:TS 3.0(SHIFT) 50 5/7 [1- 99] 50 Sim46-10 TEXT 600 16:TS 3.0(GAMMA) 50 17:TS 4.0(SHIFT) 50 18:TS 4.0(GAMMA) 50 6/7 [1- 99] 50 Sim46-10 TEXT 600 19:TS 5.0(SHIFT) 50 20:TS 5.0(GAMMA) 50 7/7 [1- 99] 50 1: 1.0(SHIFT) → TEXT density 1 shift amount 2: 1.0(GAMMA) → TEXT density 1 gamma value 3: 2.0(SHIFT) → TEXT density 2 shift amount 4: 2.0(GAMMA) → TEXT density 2 gamma value 5: 3.0(SHIFT) → TEXT density 3 shift amount 6: 3.0(GAMMA) → TEXT density 3 gamma value 7: 4.0(SHIFT) → TEXT density 4 shift amount 8: 4.0(GAMMA) → TEXT density 4 gamma value 9: 5.0(SHIFT) → TEXT density 5 shift amount 10: 5.0(GAMMA) → TEXT density 5 gamma value 11: TS 1.0(SHIFT) → TS TEXT density 1 shift amount 12: TS 1.0(GAMMA) → TS TEXT density 1 gamma value 13: TS 2.0(SHIFT) → TS TEXT density 2 shift amount 14: TS 2.0(GAMMA) → TS TEXT density 2 gamma value 15: TS 3.0(SHIFT) → TS TEXT density 3 shift amount 16: TS 3.0(GAMMA) → TS TEXT density 3 gamma value 17: TS 4.0(SHIFT) → TS TEXT density 4 shift amount 18: TS 4.0(GAMMA) → TS TEXT density 4 gamma value 19: TS 5.0(SHIFT) → TS TEXT density 5 shift amount 20: TS 5.0(GAMMA) → TS TEXT density 5 gamma value Select an item to be changed and set a desired adjustment value. Press [OK] key, and the machine shifts to the copy window. When [START] key is pressed at that time, copying is performed with the previous adjustment value and the result can be checked.	The value on the example (50) is not the default value.

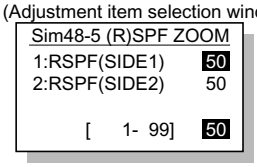
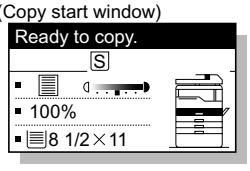
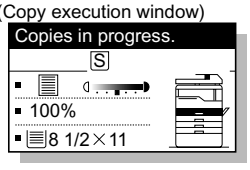
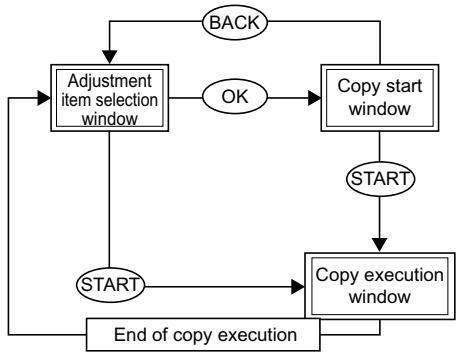
Main code	Sub code	Contents	Remark
46	11	**Copy exposure level adjustment, individual setting (Photo) 600dpi** Used to adjust the shift amount and the slanting value for each density level (1-5) when the exposure model is PHOTO (error diffusion and dither). • For the shift amount, the gamma (gradation) is common. The whole sections are made brighter or darker. When the shift amount is increased, the brightness is decreased. When the shift amount is decreased, the brightness is increased. • The slanting value changes the gamma (gradation). When the set value is increased, the gamma is increased to provide a higher contrast. (Clear black and white) When the set value is decreased, the gamma is decreased to provide a lower contrast. (Higher gradation) Select an adjustment mode with the cross key, and enter the set value with 10-key. The adjustment range is 1 - 99. When [←] or [→] key is pressed, the page is changed. The shift amount and the slanting value can be individually set for each of five levels of density for each of PHOTO mode (error diffusion and dither). Therefore, there are 20 patterns of adjustment modes. 1: ED 1.0(SHIFT) → PHOTO (Error diffusion) density 1 shift amount 2: 1.0(GAMMA) → PHOTO (Error diffusion) density 1 gamma value 3: ED 2.0(SHIFT) → PHOTO (Error diffusion) density 2 shift amount 4: ED 2.0(GAMMA) → PHOTO (Error diffusion) density 2 gamma value 5: ED 3.0(SHIFT) → PHOTO (Error diffusion) density 3 shift amount 6: ED 3.0(GAMMA) → PHOTO (Error diffusion) density 3 gamma value 7: ED 4.0(SHIFT) → PHOTO (Error diffusion) density 4 shift amount 8: ED 4.0(GAMMA) → PHOTO (Error diffusion) density 4 gamma value 9: ED 5.0(SHIFT) → PHOTO (Error diffusion) density 5 shift amount 10: ED 5.0(GAMMA) → PHOTO (Error diffusion) density 5 gamma value 11: DI 1.0(SHIFT) → PHOTO (Dither) density 1 shift amount 12: DI 1.0(GAMMA) → PHOTO (Dither) density 1 gamma value 13: DI 2.0(SHIFT) → PHOTO (Dither) density 2 shift amount 14: DI 2.0(GAMMA) → PHOTO (Dither) density 2 gamma value 15: DI 3.0(SHIFT) → PHOTO (Dither) density 3 shift amount 16: DI 3.0(GAMMA) → PHOTO (Dither) density 3 gamma value 17: DI 4.0(SHIFT) → PHOTO (Dither) density 4 shift amount 18: DI 4.0(GAMMA) → PHOTO (Dither) density 4 gamma value 19: DI 5.0(SHIFT) → PHOTO (Dither) density 5 shift amount 20: DI 5.0(GAMMA) → HOTO (Dither) density 5 gamma value  Select an item to be changed and set a desired adjustment value. Press [OK] key, and the machine shifts to the copy window. When [START] key is pressed at that time, copying is performed with the previous adjustment value and the result can be checked.	The value on the example (50) is not the default value.

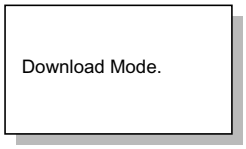
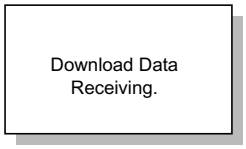
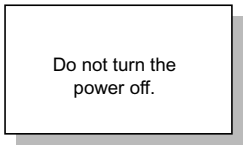
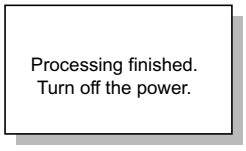
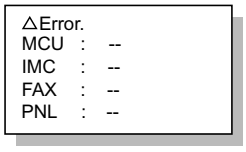
Main code	Sub code	Contents	Remark
46	18	**Image contrast adjustment (300dpi)** Used to set the contrast for each mode. When this simulation is executed, the list of the setting items and the current set value are displayed. Select an item to be changed with [↑] and [↓] keys, and enter an adjustment value with 10-key. The setting range is 1 - 99. When [→] or [←] key is pressed, the page can be changed. When the set value is increased, the contrast becomes higher. When the set value is decreased, the contrast becomes lower. Though copying is made only at density 3, the contrast levels at density 1 from density 5 are also changed accordingly. Window display : Adjustment mode 1:AE : AE MODE (300dpi) 2:TEXT : TEXT MODE (300dpi) 3:PHOTO 1 : PHOTO MODE (Error diffusion) 4:PHOTO 2 : PHOTO MODE (Dither) 5:TEXT (TS) : TS MODE (TEXT) (300dpi) 6:AE (TS) : TS MODE (AE) (300dpi) Sim46-18 GAMMA SET. 1:AE 50 2:TEXT 50 3:PHOTO 1 50 1/2 [1- 99] 50 Sim46-18 GAMMA SET. 4:PHOTO 2 50 5:TEXT(TS) 50 6:AE(TS) 50 2/2 [1- 99] 50 Enter an adjustment value and press [OK] key. The entered value is saved to the EEPROM and the machine shifts to the copy window. Sample copying can be performed during this simulation.	
	19	**Exposure mode setting (γ table setting/AE operation mode setting/Photo image process setting)** Used to set the following three items. Select an item with the UP/DOWN key of the cross key and enter a set value with 10-key. (1) : γ table setting (2) : AE operation mode (3) : PHOTO image process setting When this simulation is executed, the current set code number of the above three modes are displayed. Sim46-19 AE MODE 1:AE MODE 1 2:AE STOP 0 3:PHOTO 1 [1- 2] 1 (1) AE MODE(γ table setting) Used to set the priority operation mode of the AE mode. When the image takes priority regardless of the toner consumption, set to 1. When the toner consumption must be suppressed regardless of image quality, set to 2. Code number | γ table setting 1 | Priority on image quality (Default for Japan) 2 | Priority on toner consumption (Default for EX Japan) * If this setting is changed, SIM 46-30 returns to the default. (2) AE STOP (AE operation mode) Used to set the area for automatic exposure correction in image process. Code number | AE operation mode 0 | Lead edge stop (Default) 1 | Real time process (All areas) (3) PHOTO (PHOTO image process setting) Used to set the image process when the PHOTO mode is selected. Selection is available in the following two modes: Code number | Image process mode 1 | Error diffusion process (Default) 2 | Dither process	Default: 2 Default: 0 Default: 1

Main code	Sub code	Contents	Remark
46	20	**SPF exposure correction** Used to set the exposure correction amount in the SPF mode. (Since a slightly darker image is outputted in the SPF mode compares to the OC mode, the difference from the OC mode is corrected with this simulation. When, therefore, the exposure in the OC mode is corrected, the SPF exposure is also changed accordingly.) Enter a correction value with 10-key and press [OK] key. The adjustment value is saved in the EEPROM and the machine shifts to the adjustment copy window. Since this simulation is used to make up for the exposure difference from the OC mode regardless of the exposure mode, the adjustment is fixed to TEXT mode and the exposure mode cannot be changed. After completion of copying for check, the machine returns to the setting window.  The adjustment value is in the range of 1 - 99. The default is 50. Adjustment value (Image change) 99 (Dark) • • • 50 (Default) • • • 1 (Light)	
	29	**Image contrast adjustment (600dpi)** Used to adjust the image contrast for each mode. When this simulation is executed, the current set value of each mode is displayed in two digits. (Default: 50) (Adjustment item selection window)  (Copy start window)  (Copy execution window)  Display text — Copy mode 1:AE — AE mode (600dpi) 2:TEXT — TEXT mode (600dpi) 3:PHOTO 1 — PHOTO mode (Error diffusion) 4:PHOTO 2 — PHOTO mode (Dither) 5:TEXT (TS) — TONER SAVE mode (TEXT)(600dpi) 6:AE (TS) — TONER SAVE mode (AE)(600dpi) Select an adjustment item (mode) with the cross key and enter a desired value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. 	

Main code	Sub code	Contents	Remark
46	30	**AE limit setting** Used to set the limit value in AE and AE (toner save) mode. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window) Sim46-30 AE LIMIT 1:AE 0 2:AE(TS) 0 [0- 31] 0 Window display : Mode 1: AE : AE limit value 2: AE (TS) : AE (Toner save) limit value Select an item to be changed with [↑] and [↓] keys and enter a desired value with 10-key. The entered value is saved to the EEPROM. The adjustment value is in the range of 0 - 31. (Default: 0) * Note: When SIM26 - 06 (Destination setting) and SIM46 - 19 (Auto exposure mode) are changed, this setting returns to the default accordingly.	Default: 0 (AE limit value)
	31	**Image sharpness adjustment** Used to adjust sharpening/shading of image for each mode. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window) Sim46-31 SHARPNESS 1:AE 1 2:TEXT 1 3:PHOTO 1 1 1/2 [0- 2] 1 Sim46-31 SHARPNESS 4:PHOTO 2 1 5:TEXT(TS) 1 6:AE(TS) 1 2/2 [0- 2] 1 Display text — Copy mode 1:AE — AE mode 2:TEXT — TEXT mode 3:PHOTO 1 — PHOTO mode (Error diffusion) 4:PHOTO 2 — PHOTO mode (Dither) 5:TEXT (TS) — TONER SAVE mode 6:AE (TS) — TONER SAVE mode Set value / Image quality 0 — Shading 1 — Standard *Default 2 — Sharpening The adjustment range is in the range of 0 - 2. (Default: 1) Select an adjustment item (mode) with the cross key and enter a desired value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window) Ready to copy. 100% 8 1/2×11 (Copy execution window) Copies in progress. 100% 8 1/2×11 	

Main code	Sub code	Contents	Remark
48	01	**Main/sub scanning magnification ratio adjustment** Used to adjust the magnification ratio in the main scanning (front/rear) direction and the sub scanning direction. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed (Adjustment item selection window)  Display text array : Adjustment mode 1: F-R : Main scan direction magnification ratio (OC/CR)SPF) 2: SCAN : Sub scan direction magnification ratio (OC) The adjustment value is in the range of 1 - 99. (Default: 50). When the adjustment value is increased by 1, the ratio is increased by 0.1%. Select an adjustment item (mode) with the cross key and enter a desired value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window)  (Copy execution window)   	

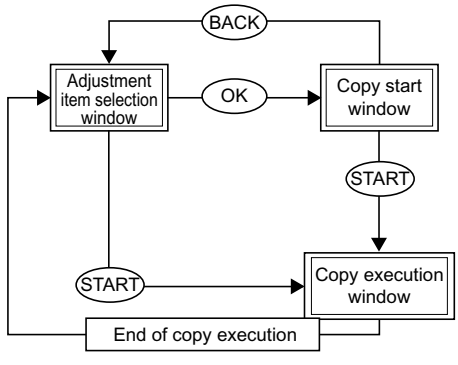
Main code	Sub code	Contents	Remark
48	05	**SPF/RSPF mode sub scanning magnification ratio adjustment in copying** Used to adjust the sub scanning magnification ratio in the SPF/RSPF mode. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)  Display text array : Adjustment mode 1: RSPF (SIDE1) : SPF/RSPF sub scan direction magnification ratio adjustment on the front of document 2: RSPF (SIDE2) : RSPF sub scan direction magnification ratio setting on the back of document The adjustment value is in the range of 1 - 99. (Default: 50) . When the adjustment value is increased by 1, the ratio is increased by 0.1%. Select an adjustment item (mode) with the cross key and enter a desired value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. To adjust the sub scanning magnification ratio on the back of the document, shift the window to the copy start window and select "Duplex → Simplex" or "Duplex → Duplex" mode with the duplex mode key. (Copy start window)  (Copy execution window)   * The exposure mode is fixed to "TEXT" with density 3, and cannot be changed. * For the model without RSPF, the adjustment item of document back is not displayed.	

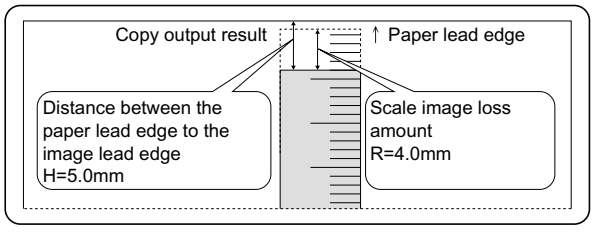
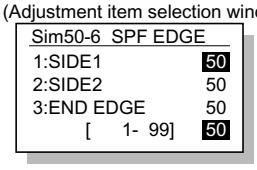
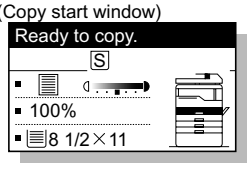
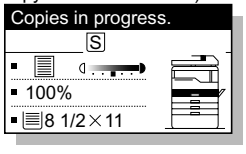
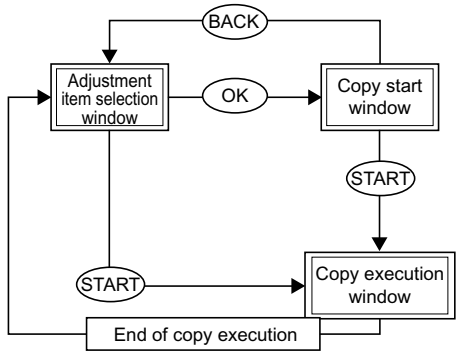
Main code	Sub code	Contents	Remark
49	01	**Flash Rom program writing mode** Used to download the programs and data sections of the main unit MCU/IMC board, the FAX board, and the operation panel. When this simulation is executed, the machine immediately shifts to the download mode and the following display is shown. O When entering the download mode  Connect the main unit and the download PC with a USB cable, and start downloading with the maintenance tool. When downloading is started, the display is changed as follows: O Receiving download data  O Processing download data  O When downloading is completed  O When an error occurs  Used to display an error code at the error position in downloading of MCU/IMC/FAX/PANEL. The error codes to be displayed are shown below.	

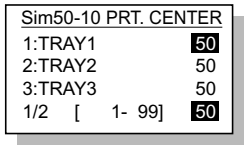
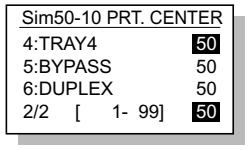
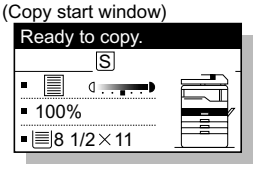
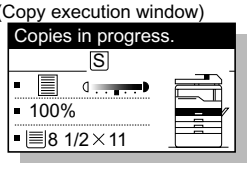
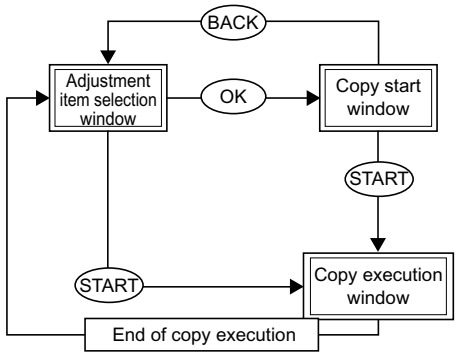
Main code	Sub code	Contents	Remark
49	01		

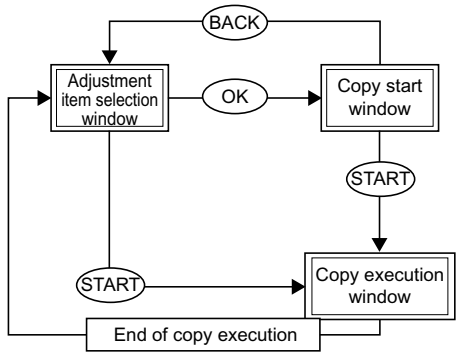
	MCU	IMC	PANEL
0xFF	No process	No process	No process
0x00	OK	OK	OK
0x01	Data receive error (Protocol error 1)	IMC sum check error	Flash Rom delete error
0x02	Data receive error (Command error)	IMC verify error	Flash Rom write error Boot
0x03	Data receive error (Protocol error 2)		Flash Rom write error (Program section)
0x04	Loader transfer error		Flash Rom write error (Common window data)
0x05	Flash Rom delete error (Boot)		Flash Rom write error (Copy window data)
0x06	Flash Rom delete error (Program)		Flash Rom write error (Scan window data)
0x07	Flash Rom write error (Boot)		Flash Rom write error (Print window data)
0x08	Flash Rom write error (Program)		Flash Rom write error (Fax window data)
0x09	Flash Rom LOCK error (Boot)		
0x0A	Flash Rom LOCK error (Boo)		Flash Rom write error (Fax window data)
0x0B	Sum check error (Loader)		FROM size error
0x0C	Sum check error (Boot)		Destination error
0x0D	Sum check error (Boot)		Download file structure error
0x0E	Sum check error (EEPROM)		
0x0F	EEPROM read error		
0x10	EEPROM write error		Sum check error (Boot not-written)
0x11	EEPROM verify error		Sum check error (Loader)
0x12	Download data length error		Sum check error (After Boot writing)
0x13		IMC communication error (Message test send error)	Sum check error (Program)
0x14		IMC communication error (Message test send error)	Sum check error (Common window data)
0x15		IMC communication error (Download request send error)	Sum check error (Copy window data)
0x16		IMC communication error (Download request parameter send error)	Sum check error (Scan window data)
0x17		MCU receive error (Overrun, Fleming, parity)	Sum check error (Print window data)
0x18		MCU receive time-out	Sum check error (Fax window data)
0x19	FAX communication error		Panel-MCU communication error
0x1A	PANEL communication error		
0x1B	Download file error	Download file error	

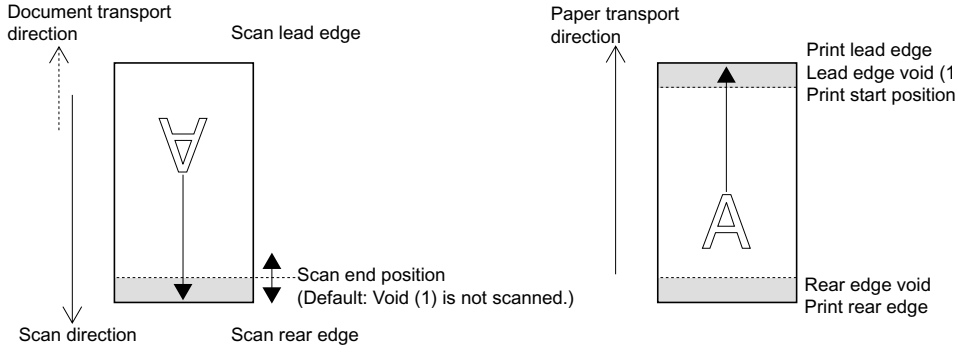
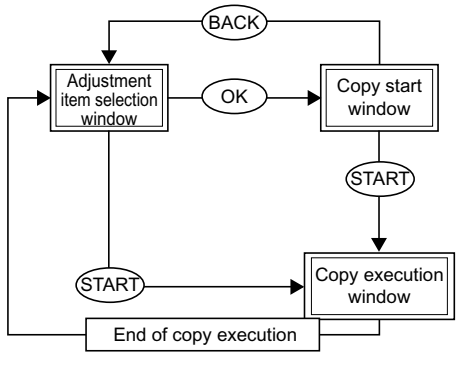
FAX			
0xFF	No process	0x44	FONT Flash write error
0x00	OK	0x45	FONT Flash sum check error
0x01	Download impossible	0x52	Registration data work sum check error
0x02	Total data size error	0x56	Registration data format error
0x03	LOADER no file	0x57	Registration data items insufficient error
0x04	DWLD no file	0x58	Registration data items overlap error
0x05	BOOT no file	0x61	BOOT data size error
0x06	MAIN no file	0x62	BOOT work sum check error
0x07	FONT download impossible	0x63	BOOT Flash erase error
0x08	Option FLASH connection error	0x64	BOOT Flash write error
0x09	Option FLASH no match	0x65	BOOT Flash sum check error
0x11	LOADER data size error	0x71	MAIN data size error
0x12	LOADER work sum check error	0x72	MAIN work sum check error
0x21	BOOT data size error	0x73	MAIN Flash erase error
0x22	BOOT work sum check error	0x74	MAIN Flash write error
0x23	BOOT Flash erase error	0x75	MAIN Flash sum check error
0x24	BOOT Flash write error	0x81	FONT data size error
0x25	BOOT Flash sum check error	0x82	FONT work sum check error
0x31	MAIN data size error	0x83	FONT Flash erase error
0x32	MAIN work sum check error	0x84	FONT Flash write error
0x33	MAIN Flash erase error	0x85	FONT Flash sum check error
0x34	MAIN Flash write error	0x91	DWLD data size error
0x35	MAIN Flash sum check error	0x92	DWLD work sum check error
0x41	FONT data size error	0x93	DWLD Flash erase error
0x42	FONT work sum check error	0x94	DWLD Flash write error
0x43	FONT Flash erase error	0x95	DWLD Flash sum check error

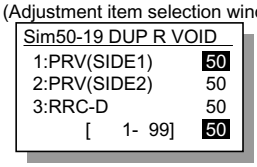
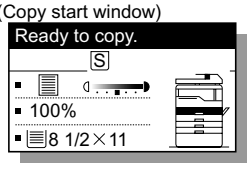
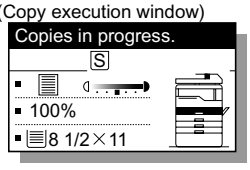
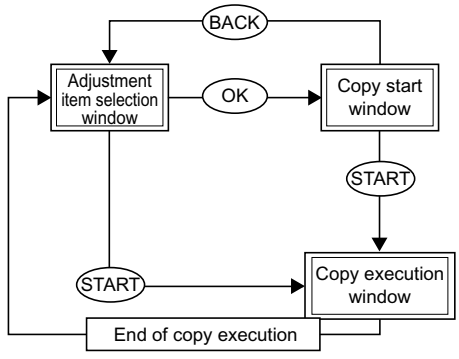
Main code	Sub code	Contents	Remark
50	01	**Image lead edge adjustment** Used to adjust the following items related to the lead edge adjustment. 1.Print start position (Offset between output image and paper → Adjusted for each tray.) 2.Image lead edge void (Margin on the output image lead edge) 3.Document scanning start position (Image scanning start position in the sub scanning direction) When this simulation is executed, the selection window of the adjustment items and the set value are displayed. (Adjustment item selection window) Sim50-1 LEAD EDGE 1:TRAY1 50 2:TRAY2 50 3:MFT 50 1/2 [1- 99] 50 Sim50-1 LEAD EDGE 4:DEN-A 50 5:RRC-A 50 6:DEN-B 50 2/2 [1- 99] 50 Display text :Adjustment mode 1:TRAY1 :Print start position (TRAY1) 2:TRAY2 (*) :Print start position (TRAY2 - TRAY4) 3:MFT :Print start position (MULTI BYPASS) 4:DEN-A :Image lead edge void amount 5:RRC-A :Document scanning start position 6:DEN-B :Image rear edge void amount Note 1: Items marked with (*) are displayed when TRAY2 and following options are not installed. Note 2: When executing an adjustment copy from the manual paper feed tray, set the following paper. AB series → A3 paper Inch series → Double Letter paper Note 3: When the adjustment value of the print start position adjustment is increased by 1, the ON timing of the resist roller is delayed and the print result is shifted to the lead edge by 0.1mm. Note 4: When the adjustment value of the image scanning start position is increased by 1, the scanning start position is shifted to the home position by about 0.1mm, increasing the image loss amount. Note 5: When the print start position (TRAY1) is changed, the print start positions (TRAY2 - TRAY4) and the print start position (MULTI BYPASS) are also changed accordingly. The adjustment value is in the range of 1 - 99. (Default: 50) Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window) Ready to copy. 100% 8 1/2×11 (Copy execution window) Copies in progress. 100% 8 1/2×11 	

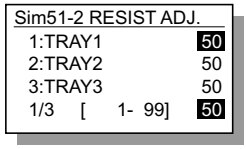
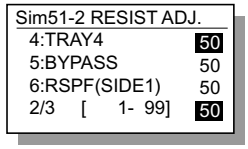
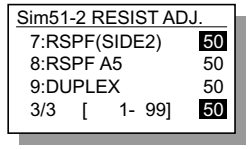
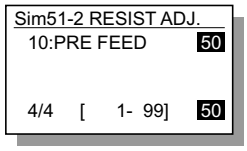
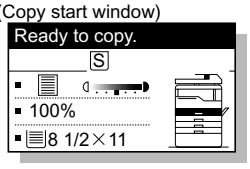
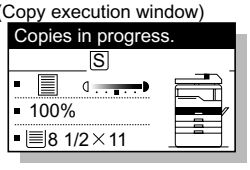
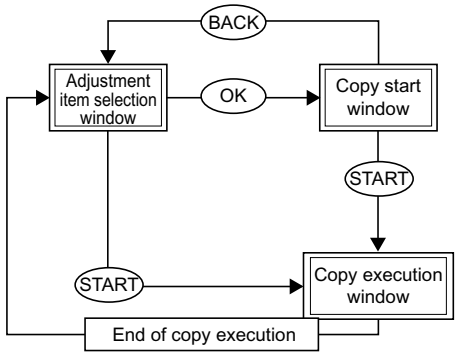
Main code	Sub code	Contents	Remark
50	01	(Adjustment procedure) (1) Set the print start position (1: TRAY1), the lead edge void amount (4: DEN - A), and the scanning start position (5: RRC - A) to "1" and make a copy of 100%. (2) Measure the image loss amount (R mm) of the scale. Set [5:RRC - A] = 10xR(mm). (Example. Set 40.) When the value of [5: RRC - A] is increased by 10, the image loss is decreased by1mm. (Default: 50) (3) Measure the distance (H mm) from the paper lead edge to the image print start position. Set [1:TRAY1] = 10xH(mm). (Example: Set 50.) When the value of [1:TRAY1] is increased by 10, the image lead edge shifts to the paper lead edge by 1mm. (Default: 50) (4) Set the lead edge void amount to B = 50(2.5mm). (Default: 50) When the value of [4:DEN - A] is increased by 10, the void amount is increased by about 1mm. (For 25 or less, the void amount is zero.) [Example]  	
	06	**Copy lead edge position adjustment (SPF/RSPF)** Used to perform the image lead edge adjustment in the SPF/RSPF copy. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)  Display text array : Adjustment mode 1: SIDE1 : Document (front) scan start position adjustment 2: SIDE2 : Document (back) scan start position adjustment 3: END EDGE : Document rear edge image loss adjustment The adjustment value is in the range of 1 - 99. (Default: 50). When the adjustment value of the document scanning start position is increased by 1, the scanning timing is advanced, resulting in a smaller image loss. Select an adjustment item (mode) with the cross key and enter a desired value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window)  (Copy execution window)   	

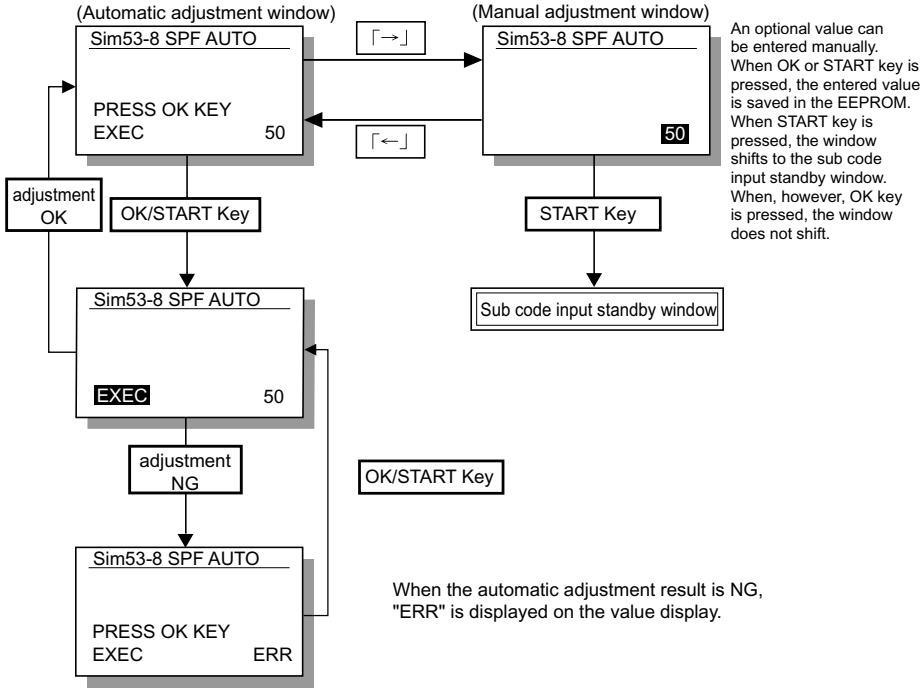
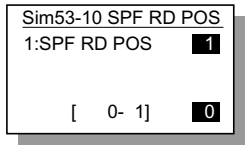
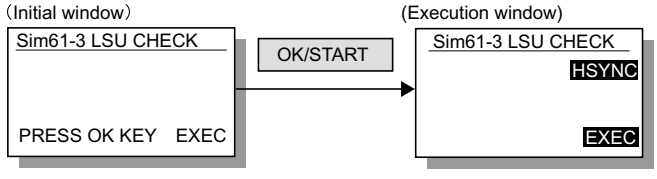
Main code	Sub code	Contents	Remark
50	10	**Paper off-center adjustment** Used to adjust the output area (main scanning direction) of scanned image data on paper. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)   Display text :Adjustment mode 1:TRAY1 :Print center offset (TRAY1) 2:TRAY2 (*) :Print center offset (TRAY2) 3:TRAY3 (*) :Print center offset (TRAY3) 4:TRAY4 (*) :Print center offset (TRAY4) 5:BYPASS :Print center offset (BYPASS) 6:DUPLEX (*) :Print center offset (DUPLEX 2nd print surface) Note 1: Items marked with (*) are displayed when TRAY2 and following options are not installed. Note 2: When executing an adjustment copy from the manual paper feed (BYPASS) tray, set the following paper according to the destination specification. AB series → A3 paper Inch series → Double Letter paper The adjustment value is in the range of 1 - 99. (Default: 50) When the adjustment value is increased, the output image is shifted to the right. When the adjustment value is increased by 1, the image is shifted to the right by about 0.1mm. Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window)  (Copy execution window)  	Default: 1

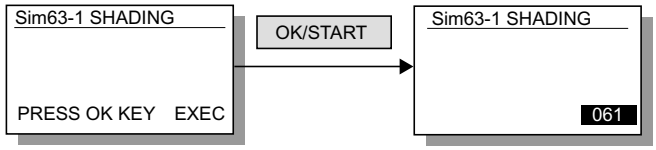
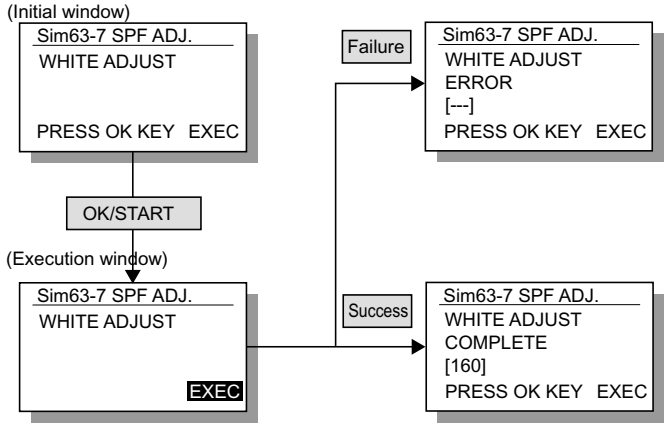
Main code	Sub code	Contents	Remark
50	12	**Document off-center adjustment** Used to adjust the scanning start position in the main scanning direction of the document. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window) Sim50-12 ORG. CENTER 1:OC 50 2:SPF(SIDE1) 50 3:SPF(SIDE2) 50 [1- 99] 50 Display text array : Adjustment mode 1: OC : OC document off-center adjustment 2: SPF (SIDE1) : SPF document (front) off-center adjustment 3: SPF (SIDE2) : SPF document (back) off-center adjustment (Note) 2:SPF(SIDE1) is available only for the model with the SPF/RSPF. (Note) 3:SPF(SIDE2) is available only for the model with RSPF. The adjustment value is in the range of 1 - 99. (Default: 50) When the adjustment value is increased, the document scanning position is shifted to the right and the image is shifted to the left as a result. When the adjustment value is increased by 1, the scanning area is shifted by 0.1mm. Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window) Ready to copy. S 100% 8 1/2×11 (Copy execution window) Copies in progress. S 100% 8 1/2×11 	

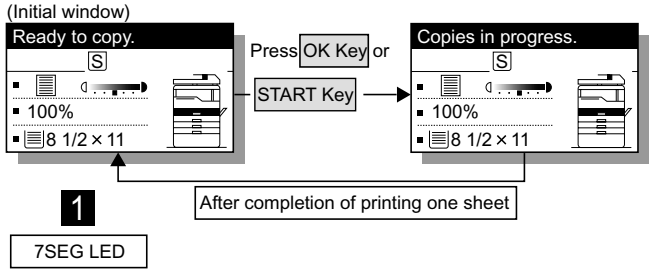
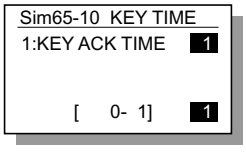
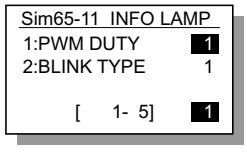
Main code	Sub code	Contents	Remark
50	18	**Memory reverse position adjustment in duplex copy** Used to adjust the reverse point (scanning end position) on the reversed surface in duplex copy. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed (Adjustment item selection window) Sim50-18 DUP REV. 1:OC 50 2:SPF 50 [1- 99] 50 Display text array : Adjustment mode 1: OC : OC memory reverse output position 2: SPF : SPF memory reverse output position The adjustment value is in the range of 1 - 99. (Default: 50) Front surface print in S-D mode and even page print in D-S mode are reverse memory copy operations from the document rear edge. When, therefore, the print start position adjustment of the output image is required, adjust as follows: The image in the reverse memory copy is printed from the scanning rear edge when the document scanning direction is in the arrow direction as shown below. If, therefore, the print lead edge is shifted, set the reference chart with the rear edge on the reference position, and adjust the simulation set value with this simulation so that the print image lead edge matches. Since printing is started at the print start position from the last memory image data to the head data, the end data position saved in the memory is changed by changing the scanning end position with the simulation, adjusting the image lead edge position.  Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window) Ready to copy. 100% 8 1/2×11 (Copy execution window) Copies in progress. 100% 8 1/2×11  	

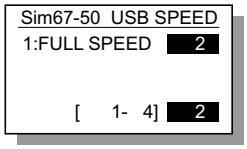
Main code	Sub code	Contents	Remark
50	19	**Rear edge void adjustment in duplex copy** Used to adjust the rear edge void amount in duplex copy. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)  Display text array : Adjustment mode 1: PRV (SIDE1) : Paper rear edge void amount (1st print surface) 2: PRV (SIDE2) : Paper rear edge void amount (2nd print surface) 3: RRC-D : Print start position (2nd print surface) The adjustment value is in the range of 1 - 99. (Default: 50) When the adjustment value is increased by 1, the rear edge void amount is increased by about 0.1mm. Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying (Copy start window)  (Copy execution window)  	

Main code	Sub code	Contents	Remark
51	02	**Resist amount adjustment** Used to adjust the contact pressure (warp amount) of paper against the resist roller of the main unit resist roller and the SPF/RSPF. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)     Display text :Adjustment mode 1:TRAY1 :Resist amount in paper feed from TRAY1 2:TRAY2 :Resist amount in paper feed from TRAY2 (*1) 3:TRAY3 :Resist amount in paper feed from TRAY3 (*1) 4:TRAY4 :Resist amount in paper feed from TRAY4 (*1) 5:BYPASS :Resist amount in paper feed from manual tray 6:RSPF(SIDE1) :Resist amount on SPF/RSPF document surface (*1) 7:RSPF(SIDE2) :resist amount on RSPF document back (*1) 8:RSPF A5 :Document resist amount in A5 document back transport (*1) 9:DUPLEX :Resist amount in DUPLEX print (Second print surface) (*1) 10: PRE FEED :Pre-feed time of the manual feed tray paper feed. (*2) (*1) Valid only when an option is installed. (If an option is not installed, it is not displayed on the adjustment window.) (*2) When heavy paper slips in manual feed copy, or when a paper jam occurs in thin paper copy, adjust this set value to remove the problem. • Heavy paper slips. → Increase the set value. • Thin paper jams. → Decrease the set value. The adjustment range is 1 - 99. The default of pre-feed time for manual paper feed tray paper feed is 32. The default for the others 50. Select an adjustment item (mode) with the cross key, and enter the set value with 10-key. When [OK] key is pressed, the entered value is saved to the EEPROM and the machine shifts to the copy execution window. After completion of copying, the machine returns to the adjustment value input window. When [START] key is pressed instead of [OK] key, the machine shifts to the copy execution window and performs copying. (Copy start window)  (Copy execution window)  	

Main code	Sub code	Contents	Remark
53	08	**SPF scanning position automatic adjustment** Used to adjust the SPF stop position of the mirror unit in the SPF copy. The scanning position is basically determined by the automatic adjustment. It can be also adjusted manually.  	
	10	**SPF scanning position setting** Used to change setting depending on whether the SPF unit and the SPF document glass holder section are anti-dirt glass or not. When this simulation is executed, the selection window of the adjustment items and the current set value are displayed. (Adjustment item selection window)  Setting value: Adjustment mode 0: SPF scan position setup for model which is not provided with dirt prevention 1: Scan position setting for dirt prevention SPF * Default = 1 (Dirt prevention part) Though this setting is changed, the other adjustment values are not changed. When replacing or installing the SPF unit, use this simulation to set the position and perform the scanning position automatic adjustment.	Default: 1
61	03	**HSYNC output check** When this simulation is executed, the polygon motor is rotated for 30sec together with the LEND signal. "EXEC" (indicating execution) and "HSYNC" (HSYNC sensor detecting status) are displayed. Every time when the HSYNC signal is detected, "HSYNC" display is highlighted for 100ms.  	

Main code	Sub code	Contents	Remark
63	01	**Shading check** Used to display the detection level when the lamp of the white plate for shading correction is lighted. When the simulation code is entered, the initial window is displayed to urge execution. Press [OK] key or [START] key to start the simulation. The contents of the operations are as follows: 1. The mirror base unit is shifted to the white plate for shading correction. 2. The copy lamp is lighted. 3. "0" is displayed until the copy lamp light quantity is stabilized. 4. When the light quantity is stabilized, the level of 1 pixel on the CCD center which is not corrected is displayed in hexadecimal. * The white level is displayed for about 10sec. The data update cycle is about 1sec. 5. After passing 10sec, the machine returns to the sub code input window. 	
	07	**SPF automatic correction** Used to adjust the SPF white correction start pixel position. When the carriage or the platen glass is replace, this simulation must be executed. When this simulation is executed, the initial window as shown below is displayed. When [OK] key or [START] key is pressed with the OC cover open, the automatic adjustment is executed and the position (which pixel from the CCD edge) of the exposure correction sheet (white Mylar) in the SPF position is displayed. After completion of adjustment, the result is saved to the EEPROM. When the result is in the range of 93 - 299, it is judged as a success. If not, it is judged as an error. In case of an error, the result is not saved to the EEPROM.  * Since this simulation detects the border line between the white Mylar (white) edge and the sky-shot (black), if the simulation is executed with the SPF unit (OC cover) open, it is judged as an error. * Since the adjustment value is the position of the border line, in order to execute white correction in an actual SPF copy, the point is "Adjustment value - 34th pixel."	

Main code	Sub code	Contents	Remark
64	01	**Self print** Used to perform printing of one page disregarding the optical system status. Also when the print command is issued from the host, printing is performed. When this simulation is executed, warm-up is performed and the ready lamp is lighted. (Since, however, the optical system is invalid, initializing is not performed.) There are following four self-printable patterns.Use 10-key to select a pattern. The selected pattern is displayed on 7-segment LED. 7SEG LED — Print pattern 0 — 1BY2 mode (*1) 1 — Grid pattern (*2) 2 — White paper 3 — Black background (4 - 99: Input invalid) (*1) After outputting 1 line black data, white data of 2 line is outputted. (*2) The grid pattern of about 1cm square is outputted. (*3) Data are always made for A3 size. If printing is made on paper smaller than A3, the remaining data are not outputted. (Images are not formed on the drum.) (Initial window) 	
65	10	**Key reception time setting display/non-display setting** Used to set Enable/Disable of the key reception time setting in the key operator program. When this setting is set to Enable (1), the key reception time is displayed in the key operator program, allowing setting.  Display: Setting 0: Disable 1: Enable (Default) [CA] key: Exit the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 1 (Enable)
	11	**Info lamp setting** Used to set the Info lamp brightness (PWM duty) and the kind of flashing.  Lamp brightness 1: 100% (Default) 2: 80% 3: 60% 4: 40% 5: 20% Kind of flashing 1: Flashing (Default) 2: Flashing 10 times, and lighting thereafter. 3: Lighting During this simulation, Info lamp is lighted to allow checking of the brightness. [CA] key: Exit the simulation mode. [Interruption] key: Shifts to the sub code input window.	Default: 1 (Flashing)

Main code	Sub code	Contents	Remark
67	50	**USB reception speed adjustment** Used to set an limitation on the print data reception speed when the USB transfer speed is at full speed.  ↑ Fast / ↓ Slow Display : Setting 1 : FAST 2 : NORMAL 1 3 : NORMAL 2 (Default) 4 : SAFE * When images are disturbed in printing through USB, change the setting and try again. CA key: Exits from the simulation mode. Interruption key: Shifts to the sub code entry window.	Default: 3 (Normal2)

[8] TROUBLE CODE LIST

1. Trouble code list

Main code	Sub code	Content
E1	00	IMC PWB communication trouble
	10	IMC PWB trouble
	11	IMC ASIC error
	13	IMC PWB flash ROM error
	16	IMC PWB DIMM memory read/write check error
	81	Interface error in communication with IMC PWB (Parity)
	82	Interface error in communication with IMC PWB (Overrun)
	84	Interface error in communication with IMC PWB (Framing)
E7	01	Duplex model memory error
	02	LSU trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	12	Shading trouble
	16	Abnormal laser output
F2	04	Improper cartridge (destination error, life cycle error)
F5	02	Copy lamp lighting abnormality
F6	00	FAX board communication trouble
	10	FAX board trouble
	80	FAX board communication trouble (Protocol)
	81	FAX board communication trouble (Parity)
	82	FAX board communication trouble (Overrun)
	84	FAX board communication trouble (Framing)
	88	FAX board communication trouble (Time out)
	99	Machine - FAX language error
F9	00	AR-NB3 communication trouble
H2	00	Thermistor open
H3	00	Heat roller high temperature detection
H4	00	Heat roller low temperature detection
H5	01	5-time continuous detections of POUT not-reached jam
L1	00	Scanner feed trouble
L3	00	Scanner return trouble
L4	01	Main motor lock detection
	11	Shifter motor trouble
L6	10	Polygon motor lock detection
L8	01	No full wave signal
U1	03	FAX board battery error
U2	04	EEPROM read/write error (serial communication error)
	11	Counter check sum error (EEPROM)
	40	CRUM chip communication error
U9	00	Panel board communication trouble
	80	Panel board communication trouble (Protocol)
	81	Panel board communication trouble (Parity)
	82	Panel board communication trouble (Overrun)
	84	Panel board communication trouble (Framing)
	88	Panel board communication trouble (Time out)
	99	Panel language error

2. Details of trouble codes

Main code	Sub code		Details of trouble
E1	00	Content	IMC PWB communication trouble.
		Detail	An abnormality occurs in communication between the MCU PWB and the IMC PWB.
		Cause	IMC PWB-MCU PWB harness abnormality. MCU PWB connector disconnection. IMC PWB ROM defect/data abnormality.
		Check and remedy	Check connection of the connector and the harness between the IMC PWB and the MCU PWB. Check the ROM of the IMC PWB.
	10	Content	IMC PWB trouble.
		Detail	An abnormality occurs in the IMC PWB.
		Cause	USB chip error/CODEC error on the IMC PWB.
		Check and remedy	Replace the IMC PWB with a new one.
	11	Content	IMC ASIC error.
		Detail	An abnormality occurs in the IMC PWB.
		Cause	Abnormality in ASIC on the IMC PWB.
		Check and remedy	Replace the IMC PWB with a new one.
	13	Content	IMC PWB flash ROM error.
		Detail	An abnormality occurs in the IMC flash ROM.
		Cause	IMC PWB abnormality.
		Check and remedy	Replace the IMC PWB with a new one. If downloading of the program is abnormally terminated, it may cause an error. Download the program again to avoid this.
	16	Content	IMC PWB DIMM memory read/write check error.
		Detail	An installation error occurs in the IMC expansion compression memory module. An error occurs during access to the IMC expansion compression memory.
		Cause	Improper installation of the IMC expansion memory module. IMC expansion memory module abnormality. IMC expansion memory contact abnormality. IMC PWB abnormality.
		Check and remedy	Check installation of the expansion memory module. Replace the expansion memory module. Replace the IMC PWB with a new one.
	81	Content	Interface error in communication with IMC PWB (Parity).
		Detail	A parity error occurs in communication between the MCU PWB and the IMC PWB.
		Cause	IMC PWB-MCU PWB harness defect. Improper connection of the MCU PWB connector. IMC PWB ROM defect/data abnormality.
		Check and remedy	Check connection of the connector/harness between the IMC PWB and the MCU PWB. Check the ROM of the IMC PWB.

Main code	Sub code		Details of trouble
E1	82	Content	Interface error in communication with IMC PWB (Overrun).
		Detail	An overrun error occurs in communication between the MCU PWB and the IMC PWB.
		Cause	IMC PWB-MCU PWB harness defect. Improper connection of the MCU PWB connector. IMC PWB ROM defect/data abnormality.
		Check and remedy	Check connection of the connector/harness between the IMC PWB and the MCU PWB. Check the ROM of the IMC PWB.
	84	Content	Interface error in communication with IMC PWB (Framing).
		Detail	A framing error occurs in communication between the MCU PWB and the IMC PWB.
		Cause	IMC PWB-MCU PWB harness defect. Improper connection of the MCU PWB connector. IMC PWB ROM defect/data abnormality.
		Check and remedy	Check connection of the connector/harness between the IMC PWB and the MCU PWB. Check the ROM of the IMC PWB.
E7	01	Content	Duplex model memory error.
		Detail	The memory capacity for the duplex model machine is improper. Insufficient memory capacity.
		Cause	The memory capacity of the MCU PWB is improper.
		Check and remedy	Use SIM 26-39 to check that the memory capacity is 32MB. If it is not 32MB, replace the MCU PWB with a suitable one.
	02	Content	LSU trouble.
		Detail	The BD signal from the LSU cannot be detected in a certain cycle. (Always OFF or always ON)
		Cause	LSU connector or LSU harness defect or disconnection. Polygon motor rotation abnormality. Laser beams are not generated. MCU PWB abnormality.
		Check and remedy	Check connection of the LSU connector. Execute SIM 61-03 to check the LSU operations. Check that the polygon motor rotates normally. Check that the laser emitting diode generates laser beams. Replace the LSU unit. Replace the MCU PWB.
	10	Content	Shading trouble (Black correction).
		Detail	The CCD black scan level is abnormal when the shading.
		Cause	Improper connection of the CCD unit flat cable CCD unit abnormality. MCU PWB abnormality.
		Check and remedy	Check connection of the CCD unit flat cable. Check the CCD unit.

Main code	Sub code		Details of trouble
E7	11	Content	Shading trouble (White correction).
		Detail	The CCD white scan level is abnormal when the shading.
		Cause	Improper connection of the CCD unit flat cable Dirt on the mirror, the lens, and the reference white plate. Copy lamp lighting abnormality. CCD unit abnormality. MCU PWB abnormality(When occurred in the SPF scan position). Improper installation of the mirror unit.
		Check and remedy	Clean the mirror, lens, and the reference white plate. Check the light quantity and lighting status of the copy lamp (SIM 05-03). Check the MCU PWB.
	12	Content	Shading trouble.
		Detail	White correction is not completed in the specified number of operations.
		Cause	CCD unit flat cable connection failure. Dirt on mirrors, lenses, and the reference white plate. Copy lamp lighting abnormality. CCD unit abnormality. MCU PWB abnormality .
		Check and remedy	Clean mirrors, lenses, and the reference white plate. Check the copy lamp light quantity (SIM 05-03) and lighting. Check the CCD unit. Check the MCU PWB.
	16	Content	Abnormal laser output.
		Detail	When the laser output is stopped, HSYNC is detected.
		Cause	Laser abnormality. MCU PWB abnormality.
		Check and remedy	Check the laser emitting diode operation. Replace the MCU PWB.
F2	04	Content	Improper cartridge (destination error, life cycle error)
		Detail	The destination of the machine differs from that of the CRUM. The life cycle information is other than "Not used (FFh)".
		Cause	CRUM chip defect. Improper developing unit .
		Check and remedy	Replace the CRUM chip. Replace the developing unit.
		Identification error	The trade mark code of the CRUM differs. The company code of the CRUM differs.
		Model error	The boot program model code does not coincide with the CRUM model code.
		Type error	When the CRUM type is other than genuine/ conversion/production rotation.
		Destination error	The machine destination differs from the CRUM destination.
		Data abnormality	When an error value is included in the initial check information. When the max. toner supply time is 00. When the print hard stop is 00.
		Misc error	When the Misc information is other than "Not used (FFh)".

Main code	Sub code		Details of trouble
F5	02	Content	Copy lamp lighting abnormality.
		Detail	The copy lamp does not turn on.
		Cause	Copy lamp abnormality. Copy lamp harness abnormality. CCD PWB harness abnormality.
		Check and remedy	Use SIM 5-3 to check the copy lamp operations. **When the copy lamp lights up.** Check the harness and the connector between the CCD unit and the MCU PWB. **When the copy lamp does not light up.** Check the harness and the connector between the copy lamp unit and the MCU PWB. Replace the copy lamp unit. Replace the MCU PWB.
F6	00	Content	FAX board communication trouble.
		Detail	FAX board communication error.
		Cause	No command can be sent from the MCU to the FAX.
		Check and remedy	Check connection of the FAX board. Replace the FAX board.
	10	Content	FAX board trouble.
		Detail	FAX board abnormality detection.
		Cause	FAX controller and FAX board memory abnormality.
		Check and remedy	Replace the FAX board.
	80	Content	FAX board communication trouble (Protocol).
		Detail	A break error occurs in communication between the MCU and the FAX board.
		Cause	MCU PWB connector connection failure/ Garbled data.
		Check and remedy	Check connection of the FAX board. Replace the FAX board. Reset the machine (Power OFF/ON).
	81	Content	FAX board communication trouble (Parity).
		Detail	A parity error occurs in communication. between the MCU and the FAX board.
		Cause	MCU PWB connector connection failure/ Garbled data.
		Check and remedy	Check connection of the FAX board. Replace the FAX board. Reset the machine (Power OFF/ON).
	82	Content	FAX board communication trouble (Overrun).
		Detail	An overrun error occurs in communication between the MCU and the FAX board.
		Cause	MCU PWB connector connection failure/ Garbled data
		Check and remedy	Check connection of the FAX board. Replace the FAX board. Reset the machine. (Power OFF/ON).
	84	Content	FAX board communication trouble (Framing).
		Detail	A framing error occurs in communication between the MCU and the FAX board.
		Cause	MCU PWB connector connection failure/ Garbled data.
		Check and remedy	Check connection of the FAX board. Replace the FAX board. Reset the machine (Power OFF/ON).

Main code	Sub code		Details of trouble
F6	88	Content	FAX board communication trouble (Time out).
		Detail	FAX board communication error.
		Cause	There is no respond command from the FAX for 30sec or more.
		Check and remedy	Check connection of the FAX board. Replace the FAX board. Reset the machine (Power OFF/ON).
	99	Content	Machine - FAX language error.
		Detail	Discrepancy of the destination of the machine and the FAX board.
		Cause	The destination of the machine differs from that of the FAX board.
		Check and remedy	Change the destination setting with SIM26-6. Replace the FAX board with one which. conforms to the destination of the machine.
F9	00	Content	AR-NB3 board communication trouble.
		Detail	AR-NB3 print data reception error.
		Cause	Print data cannot be received from the AR-NB3 for 3 min or more.
		Check and remedy	Reset the machine (Power OFF/ON).
H2	00	Content	Thermistor open.
		Detail	The thermistor is open. The fusing unit is not installed.
		Cause	Thermistor abnormality. Control PWB abnormality. Fusing section connector disconnection. The fusing unit is not installed.
		Check and remedy	Check the harness and the connector between the thermistor and the PWB. Use SIM 14 to clear the self diagnostic display.
H3	00	Content	Heat roller high temperature detection.
		Detail	The fusing temperature exceeds 240C°.
		Cause	Thermistor abnormality. Control PWB abnormality. Fusing section connector disconnection.
		Check and remedy	Use SIM 5-02 to check the heater lamp blinking operation. **When the lamp blinks normally.** Check the thermistor and its harness. Check the thermistor input circuit on the control PWB. **When the lamp keeps ON.** Check the power PWB and the lamp control circuit on the MCU PWB. Use SIM 14 to clear the self diagnostic display.

Main code	Sub code		Details of trouble
H4	00	Content	Heat roller low temperature detection.
		Detail	When the fusing temperature is lower than 150C° after 55sec from the start of warming up. When the warming up complete temperature is not reached in 30sec from reaching 150C°. When the fusing temperature is lower than 100C° after 20sec from ready start. When the fusing temperature is lower than 145C° when printing.
		Cause	Thermistor abnormality. Heater lamp abnormality. Thermostat abnormality. Control PWB abnormality.
		Check and remedy	Use SIM 5-02 to check the heater lamp blinking operation. **When the lamp blinks normally.** Check the thermistor and its harness. Check the thermistor input circuit on the control PWB. **When the lamp does not light up.** Check for disconnection of the heater lamp and the thermostat. Check the interlock switch. Check the power PWB and the lamp control circuit on the MCU PWB. Use SIM 14 to clear the self diagnostic display.
H5	01	Content	5-time continuous detections of POUT not-reached jam.
		Detail	Paper not-reached jams are detected 5 times or more continuously by the paper exit sensor (POUT). The jam counter is backed up and used for jobs after turning on the power.
		Cause	A fusing jam is not canceled completely. (A jam paper remains in the machine.) Paper exit sensor trouble or harness connection trouble Defective installation of the fusing unit.
		Check and remedy	Check the fusing section jam (for winding, etc.). Check the POUT sensor harness. Check installation of the fusing unit. Use SIM14 to clear the self diag display.
L1	00	Content	Scanner feed trouble.
		Detail	The scanner does not complete feeding in the specified time.
		Cause	Mirror unit abnormality. The scanner wire is disconnected. The origin detection sensor abnormality. Mirror motor harness abnormality.
		Check and remedy	Use SIM 1-1 to check the mirror reciprocating operations. **When the mirror does not feed.** Check for disconnection of the scanner wire. Check the harness and the connector between the mirror motor and the MCU PWB. Replace the mirror unit. Replace the MCU PWB. **When the mirror does feed.** Use SIM 1-2 to check the mirror home position sensor.

Main code	Sub code		Details of trouble
L3	00	Content	Scanner return trouble.
		Detail	The scanner does not complete returning in the specified time. The mirror is not in the home position when OC copying is started with the mirror standby in the home position.
		Cause	Mirror unit abnormality. Scanner wire disconnection. Origin detection sensor abnormality. Mirror motor harness abnormality.
		Check and remedy	Use SIM 1-1 to check the mirror reciprocating operations. **When the mirror does not return.** Check for disconnection of the scanner wire. Check the harness and the connector between the mirror motor and the MCU PWB. Replace the mirror unit. Replace the MCU PWB. **When the mirror does feed.** Use SIM 1-2 to check the mirror home position sensor.
L4	01	Content	Main motor lock detection.
		Detail	The main motor does not rotate. The motor lock signal is detected for 1sec or more after rotation of the main motor. The motor lock signal is detected for 1sec during rotation of the main motor.
		Cause	Main motor unit abnormality. Improper connection or disconnection the main motor and the harness. MCU PWB abnormality.
		Check and remedy	Use SIM 25-01 to check the main motor operations. Check connection of the main motor harness/ connector. Replace the main motor. Replace the MCU PWB.
	11	Content	Shifter motor trouble.
		Detail	The shifter home position detection signal is not detected when initializing the shifter.
		Cause	Shifter motor abnormality, improper connection or disconnection of the harness, shifter home position sensor abnormality.
		Check and remedy	Use SIM 03-11 to check the shifter motor operations. Check connection of the harness/connector of the shifter motor. Replace the shifter motor. Replace the MCU PWB.
L6	10	Content	Polygon motor lock detection.
		Detail	The polygon motor does not rotate. The motor lock signal is detected for 6sec after rotation of the polygon motor. The motor lock signal is detected for 1sec during rotation of the polygon motor.
		Cause	Polygon motor unit abnormality. Improper connection or disconnection of the polygon motor and the harness. MCU PWB abnormality.
		Check and remedy	Use SIM 61-1 to check the polygon motor operations. Check connection of the polygon motor harness/connector. Replace the polygon motor. Replace the MCU PWB.

Main code	Sub code		Details of trouble
L8	01	Content	No full wave signal.
		Detail	The zero cross signal is not detected.
		Cause	Power unit abnormality. MCU PWB abnormality.
		Check and remedy	Check connection of the harness and connectors. Replace the MCU PWB. Replace the power unit.
U1	03	Content	FAX board battery error.
		Detail	FAX board backup battery error.
		Cause	The voltage of the backup battery of SRAM which is installed to the FAX board falls below a certain level.
		Check and remedy	Replace the battery.
U2	04	Content	EEPROM read/write error (serial communication error).
		Detail	EEPROM access process error.
		Cause	EEPROM abnormality.
		Check and remedy	Check that the EEPROM is properly set. Use SIM 16 to cancel the trouble. Replace the MCU PWB.
	11	Content	Counter check sum error (EEPROM).
		Detail	Check sum error of the counter area in the EEPROM.
		Cause	EEPROM abnormality.
		Check and remedy	Check that the EEPROM is properly set. Use SIM 16 to cancel the trouble. Replace the MCU PWB.
	40	Content	CRUM chip communication error.
		Detail	An error occurs during communication between the MCU and the CRUM chip.
		Cause	CRUM chip abnormality. Developing unit disconnection. MCU PWB abnormality.
		Check and remedy	Replace the chip. Check installation of the developing unit. Use SIM 16 to cancel the trouble. Replace the MCU PWB.
U9	00	Content	Panel board communication trouble.
		Detail	Communication trouble with the panel board.
		Cause	No command can be sent from the MCU to the panel.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).
	80	Content	Panel board communication trouble (Protocol).
		Detail	An error occurs in communication between MCU -Panel PWB.
		Cause	MCU PWB - Panel PWB harness trouble/ Garbled data.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).
	81	Content	Panel board communication trouble (Parity).
		Detail	A parity error occurs in communication between the MCU and the Panel PWB.
		Cause	MCU PWB - Panel PWB harness trouble/ Garbled data.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).

Main code	Sub code		Details of trouble
U9	82	Content	Panel board communication trouble (Overrun).
		Detail	An overrun error occurs in communication between the MCU and the panel board.
		Cause	MCU PWB - Panel PWB harness trouble/ Garbled data.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).
	84	Content	Panel board communication trouble (Framing).
		Detail	A framing error occurs in communication between the MCU and the Panel PWB.
		Cause	MCU PWB - Panel PWB harness trouble/ Garbled data.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).
	88	Content	Panel board communication trouble (Time out).
		Detail	A time-out error occurs in communication between the MCU and the Panel PWB.
		Cause	A command is completely sent from the MCU to the panel.
		Check and remedy	MCU PWB - Panel PWB harness trouble. Replace the panel or the MCU PWB. Machine reset (Power OFF/ON).
	99	Content	Panel language error.
		Detail	Language discrepancy error.
		Cause	Discrepancy between the machine language and the panel language.
		Check and remedy	Replace the panel or the MCU PWB. Reset the machine. (Power OFF/ON).

[9] MAINTENANCE

1. Maintenance table

X:Check(Clean, adjust, or replace when required.) O:Clean ▲:Replace △:Adjust ☆:Lubricate

Unit name	Part name		When calling	50K	100K	150K
Drum peripheral	OPC drum		-	▲	▲	▲
	Cleaning blade		-	▲	▲	▲
	Side seal F/R		X	X	X	X
	MC unit		X	▲	▲	▲
	(MC charging electrode)		-	(▲)	(▲)	(▲)
	(MC grid)		-	(▲)	(▲)	(▲)
	(MC case)		-	(▲)	(▲)	(▲)
	Transfer wire		O	O	O	O
	Transfer paper guide		O	O	O	O
	MC guide sheet (Cleaning blade attached)		-	▲	▲	▲
	Drum fixing plate B		X	▲	▲	▲
	Process frame unit		X	X	X	▲
	Discharge holder		O	O	O	O
Developing section	Developer		-	▲	▲	▲
	DV seal		-	X	X	▲
	DV under seal		-	-	-	▲
	DV side seal		-	X	X	▲
	Side Mylar		-	-	-	▲
Optical section	Lamp unit	Reflector	O	O	O	O
		Mirror	O	O	O	O
	No.2/3 mirror unit	Mirror	O	O	O	O
		Pulley	X	X	X	X
	CCD peripheral	Lens	O	O	O	O
	Glass	Table glass	O	O	O	O
		White Plate	O	O	O	O
	Other	Drive wire	X	X	X	X
		Rail	X ☆	X ☆	X ☆	X ☆
		Document cover	O	O	O	O
		Document size sensor	O	O	O	O
LSU		Dust-proof glass	O	O	O	O
Paper feed section	Multi paper feed section	Take-up roller(manual / SPF)	O	O	O	O
		Paper feed roller	O	O	O	O
		Spring clutch	O ☆	O ☆	O ☆	O ☆
Paper transport section		PS roller	O	O	O	O
		Transport (paper exit) rollers	O	O	O	O
		Spring clutch	O ☆	O ☆	O ☆	O ☆
Fusing section		Upper heat roller	O	O	O	▲
		Pressure roller	O	O	O	O
		Pressure roller bearing	X	X	X	O ☆
		Upper separation pawl	X	X	X	O
		Lower separation pawl	X	X	X	O
Drive section		Gears	X ☆	X ☆	X ☆	X ☆
		Belts	X	X	X	O
Paper exit section		Ozone filter*1	X	X	X	X

*1:Recommendable replacement time:50K(Letter,5%print)

2. Maintenance display system

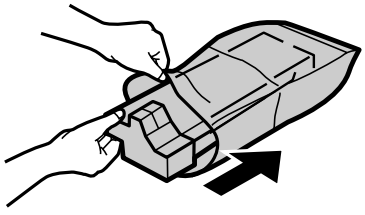
Toner	Life,	16K	
	Remaining quantity check *1	a. Press and hold the density adjustment LIGHT key for more than 5 sec, and the machine will enter the user program mode. b. Press and hold the "%" key for more than 5 sec, and the remaining quantity will be displayed on the copy quantity display in one of the following levels: (Remaining quantity display levels: 100%, 75%, 50%, 25%, 10%, LO) c. Press the density adjustment LIGHT key to cancel.	
	Remaining quantity	NEAR EMPTY About 10%	EMPTY
	Message and icon on the LCD	ON	Flash
	Machine	Operation allowed	Stop
Developer	Life	50K	
	Message and icon on the LCD	ON at 50K of the developer count	
	Machine	Selection is available between Not Stop and Stop by Service Simulation (SIM 26-37) Setup. (If Stop is selected, the LED will flash and stop at 50K.) * Default: Not Stop * Clear: SIM 42-1	
Maintenance	Message and icon on the LCD	Selection is available among 50K, 25K, 10K, 7.5K, 5K, and free (no lighting) with SIM 21-1. * Default: 50K * Clear: SIM 20-1	
	Machine	Not stop	

*1:Installation of a new toner cartridge allows to display the remaining quantity.

3. Note for replacement of consumable parts

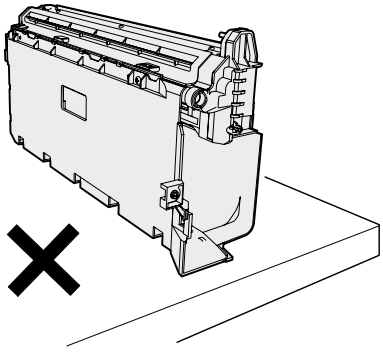
A. Toner cartridge

When a waste toner cartridge is removed from the machine, it must be put in a polyethylene bag to avoid scattering of toner.

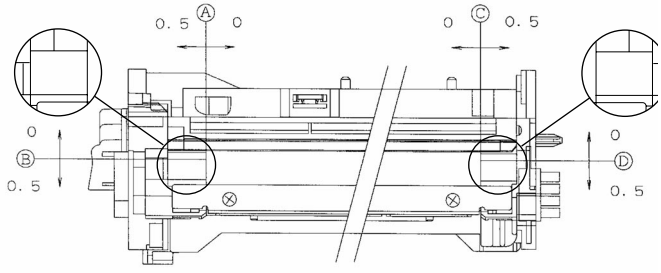


B. DV cartridge

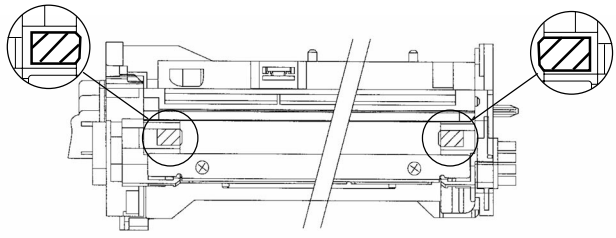
Do not shake or put up the developer cartridge. Otherwise developer may scatter.



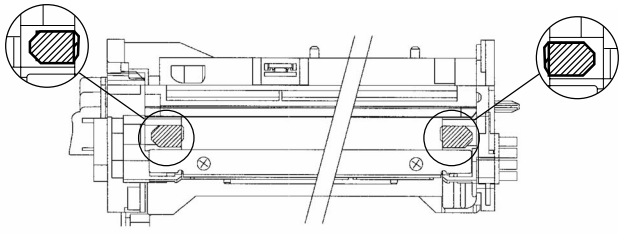
C. DV seal attachment procedure



1) When attaching the DV side Mylar, check the position shown in the figure below and attach it properly.



2) When attaching the DV side sheet, check the position shown in the figure below and attach it properly.
(First of all, attach the DV side Mylar.)



* Be sure to attach the DV side sheet so that the notch is on the outside.

[10]DISASSEMBLY AND ASSEMBLY

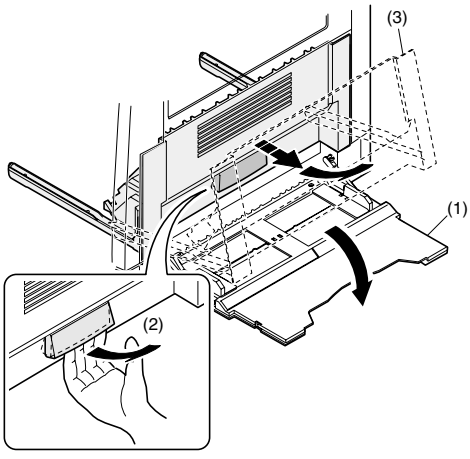
WARNING Before performing the disassembly procedure, be sure to remove the power cord to prevent against an electric shock.

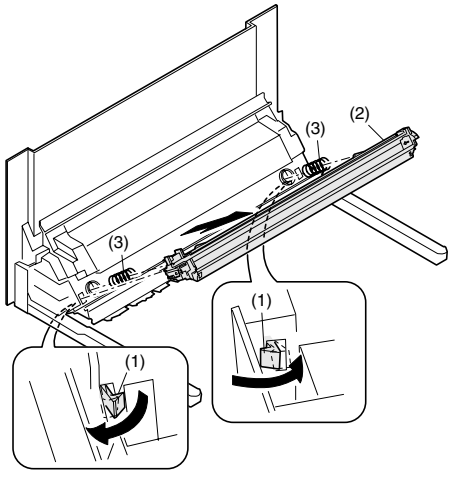
No.	Item
1	High voltage section/Duplex transport section
2	Optical section
3	Fusing section
4	Paper exit section
5	MCU
6	Optical frame unit
7	LSU
8	Tray paper feed section/Paper transport section
9	Manual multi paper feed section
10	Power section
11	Developing section
12	Process section
13	Others

1. High voltage section/Duplex transport section

No.	Content
A	Transfer charger unit
B	Charger wire
C	Duplex transport section

A. Transfer charger unit

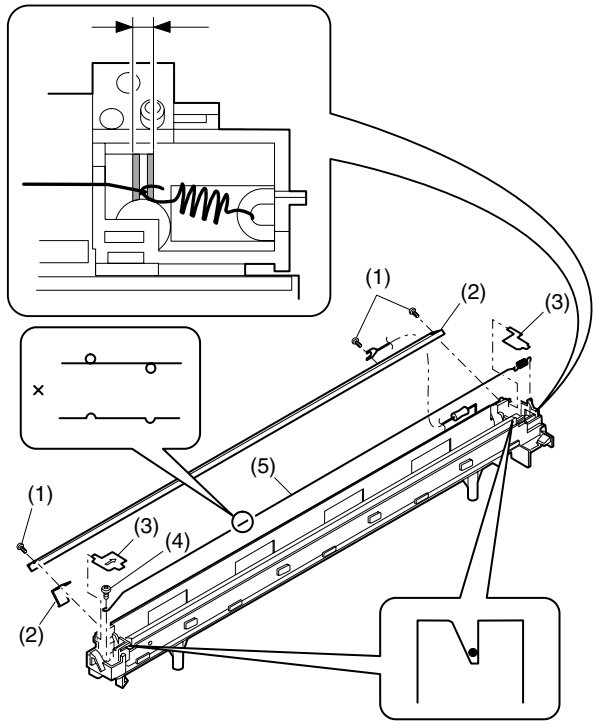




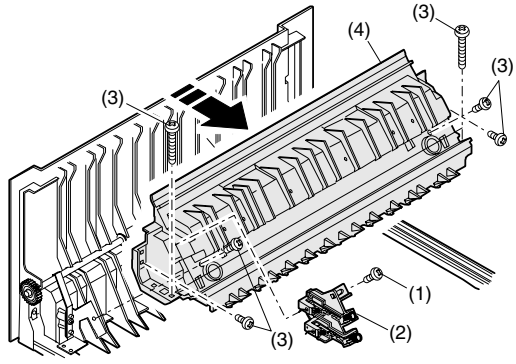
B. Charger wire

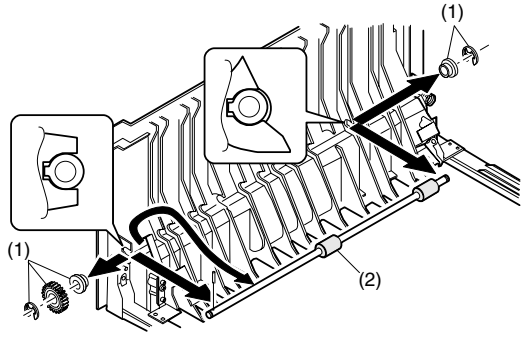
Installation: The spring tip must be between two reference ribs.

- The charger wire must be free from twist or bending.
- Be sure to put the charger wire in the V groove.



C. Duplex transport section



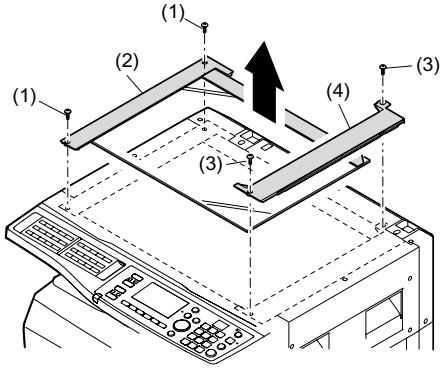


2. Optical section

Note: When disassembling or assembling the optical unit, be careful not to touch the mirror and the reflector.

No.	Content
A	Table glass
B	Copy lamp unit
C	Inverter PWB for copy lamp
D	Copy lamp
E	Lens unit
F	Wire
G	Document detection

A. Table glass

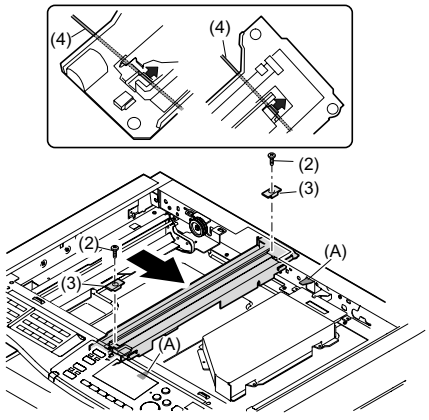


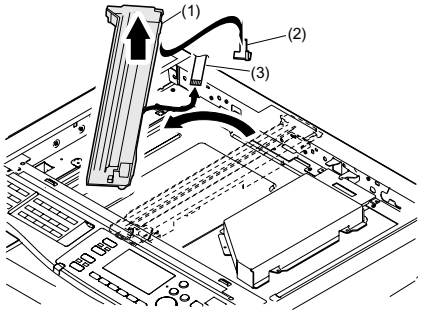
B. Copy lamp unit

Disassembly: Be sure to put No. 2/3 mirror unit to the positioning plate (A).

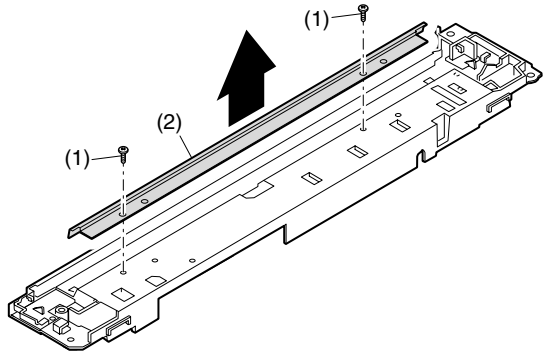
Assembly: Put the notched surface of wire holder (3) downward, tighten temporarily, and install.

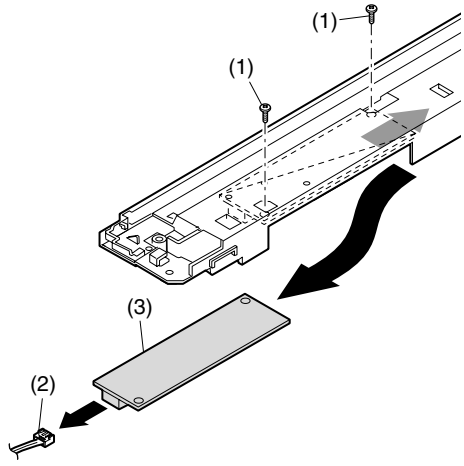
Adjustment: Main scanning direction distortion balance adjustment



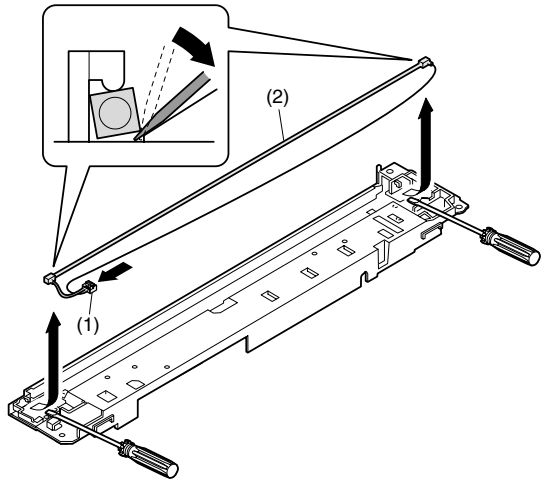


C. Inverter PWB for copy lamp





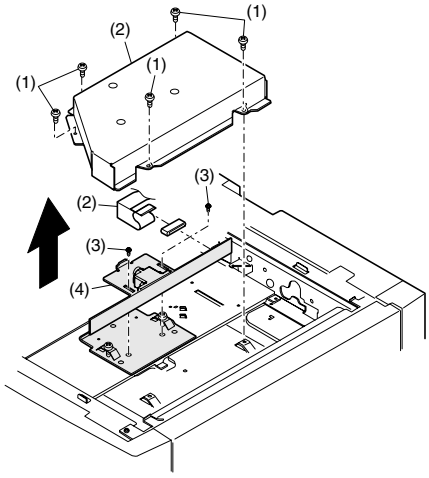
D. Copy lamp



E. Lens unit

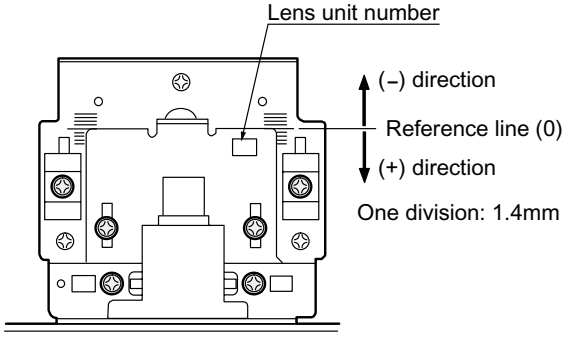
Note: Do not remove screws which are not indicated in the figure. If the height of the base plate is changed, it cannot be adjusted in the market.

Note: The CCD/lens unit is factory-adjusted before shipping. Since these adjustments cannot be performed in the market. Never touch the screws other than screw 2) of the CCD/lens unit.



Lens unit attachment

<1>Attach the lens unit so that the lens unit number on the lens adjustment plate is aligned with the scribe line on the base plate.



	CCD adjustment value
+4 scales	5.0~
+3 scales	3.6~4.9
+2 scales	2.2~3.5
+1 scale	0.8~2.1
Reference	-0.6~0.7
-1 scale	-2.0~ -0.7
-2 scales	-3.4~ -2.1
-3 scales	-4.8~ -3.5
-4 scales	~ -4.9

<2>Make a sample copy at the above position, and measure the magnification ratio.

<3>Change the installing position in the horizontal direction to adjust the magnification ratio.

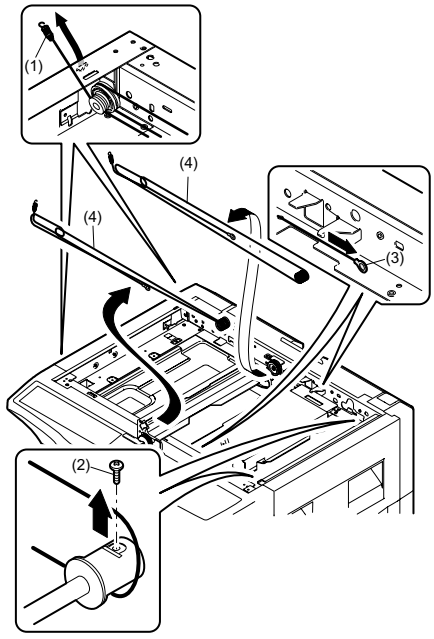
•When the copy image is longer than the original, shift to the positive (+) direction.

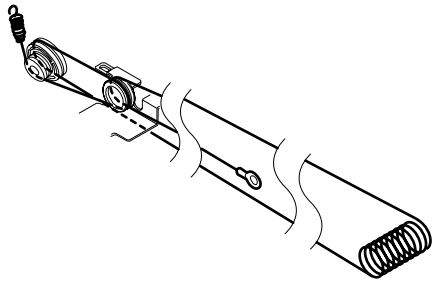
•When the copy image is shorter than the original, shift to the negative (-) direction.

* 1 scale of the scribed line corresponds to 0.34% of magnification ratio.

* If this adjustment is not satisfactory, make a fine adjustment with SIM 48-2.

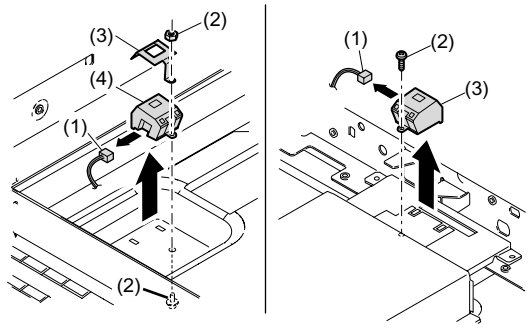
F. Wire



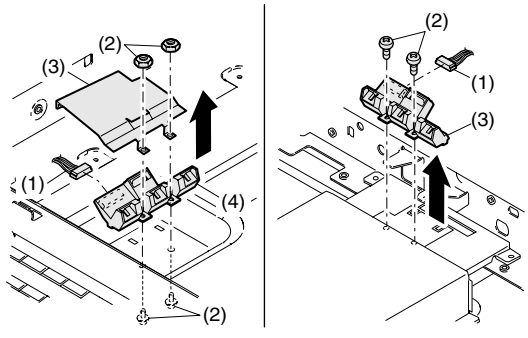


G. Document detection

For U.S.A.



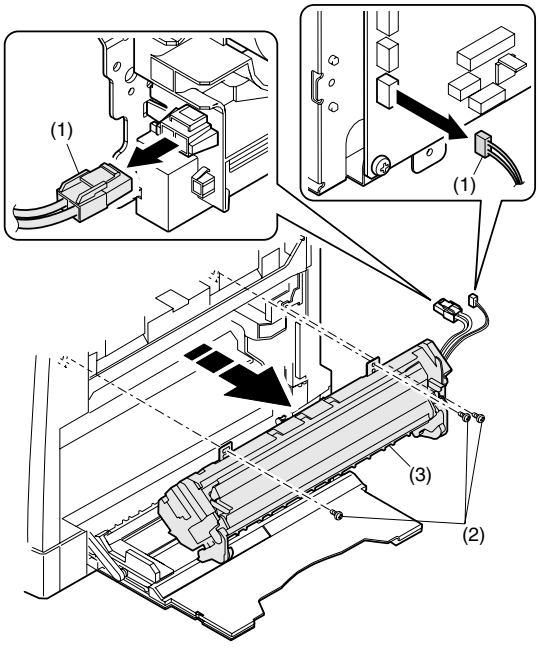
For EU. Australia



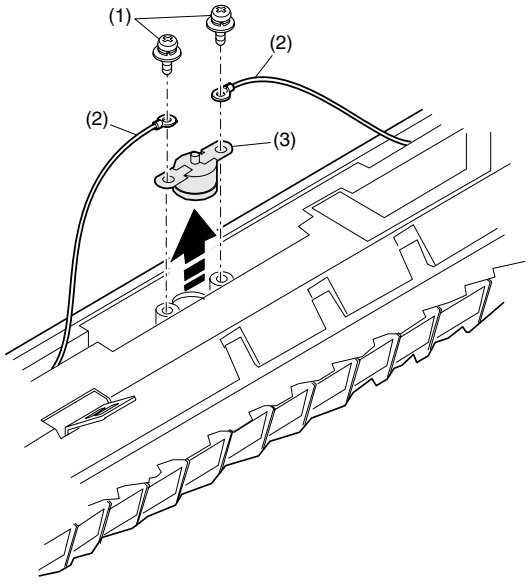
3. Fusing section

No.	Contents
A	Fusing unit
B	Thermostat
C	Thermistor
D	Heater lamp
E	Upper heat roller
F	Separation pawl
G	Lower heat roller
H	Separation pawl
I	Cleaning pad

A. Fusing unit removal

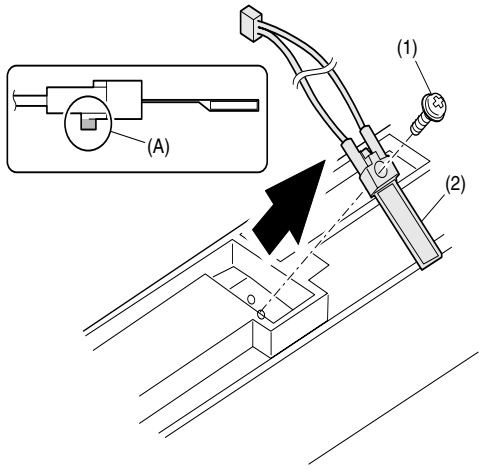


B. Thermostat



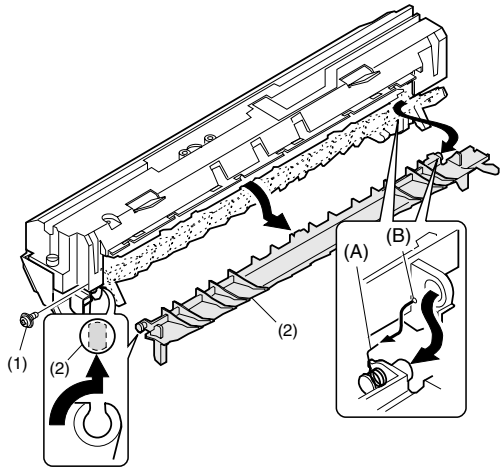
C. Thermistor

Installation: When installing the thermistor, be sure to face the installing projection (A) toward the installing surface.
Check that the thermistor is in contact with the upper heat roller.

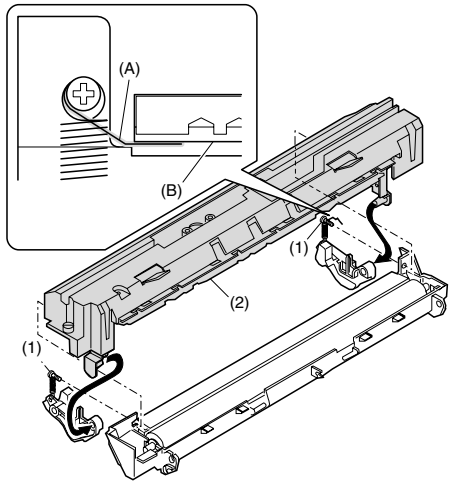


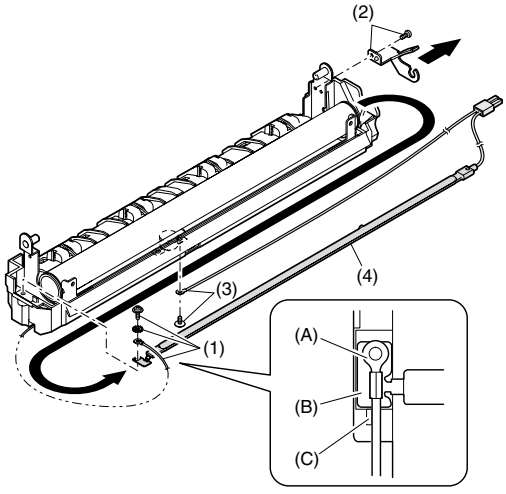
D. Heater lamp

Assembly: Insert the spring (A) into the hole (B) in the fusing frame.



Assembly: Put the paper guide earth spring (A) under the paper guide (B) before fusing.

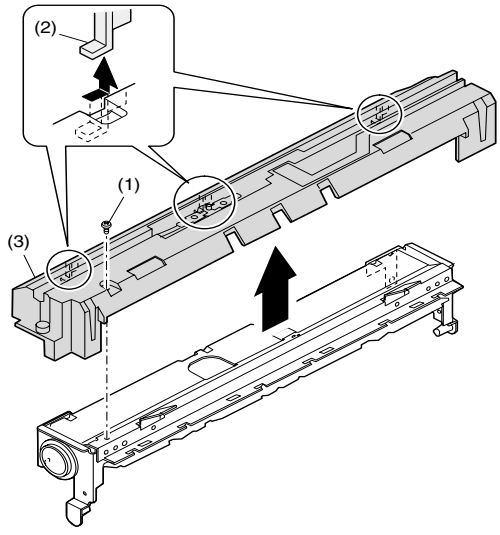


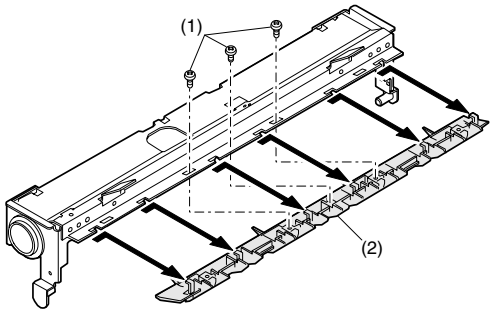


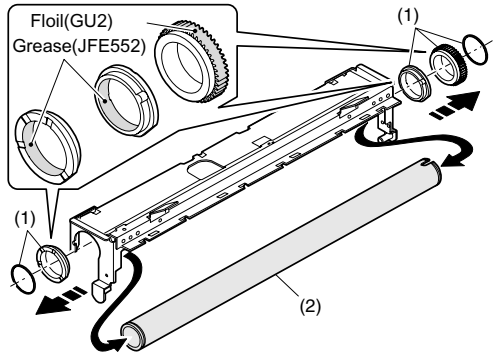
Assembly: Put the fusing harness (A) on the heater lamp (B) as shown in the figure and fix them together.<R>Place the fusing harness inside the rib (C).

E. Upper heat roller

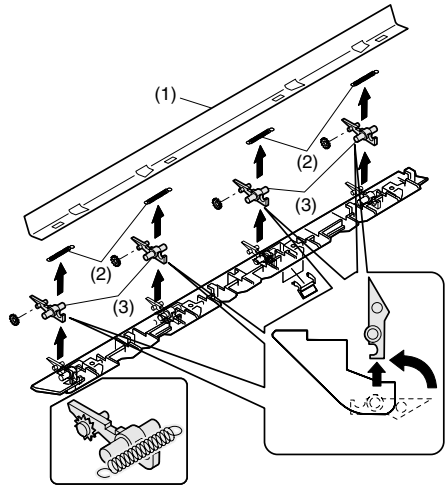
Disassembly: There are three pawls on the fusing cover. Remove the screws and slide the fusing cover to the right to remove. The heater lamp is fixed on the fusing cover with a screw. Slide the fusing cover to the front and remove the screw, then remove the heater lamp.





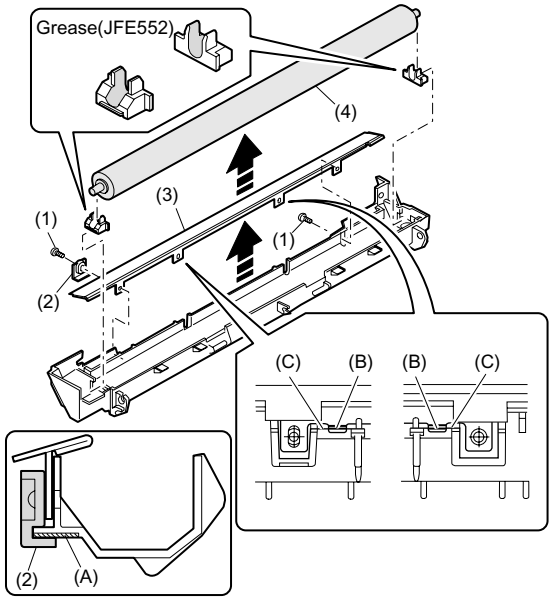


F. Separation pawl

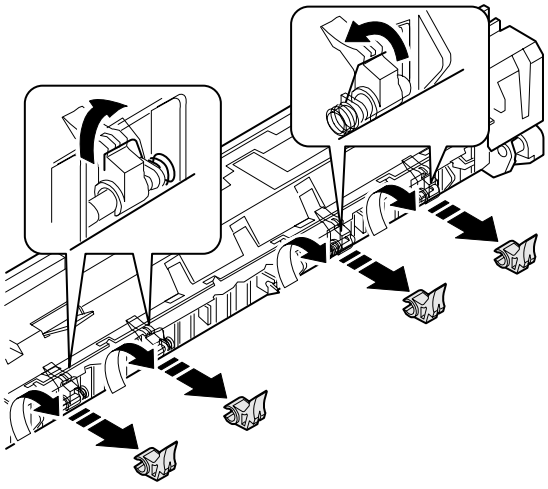


G. Lower heat roller

Assembly: When installing the paper guide (3) before fusing, fix the paper guide fixing plate with screws temporarily so that the paper guide fixing plate (2) is in contact with the frame bottom under fusing (A). Fit the mark (B) on the fusing front paper guide (3) with the top of the rib (C), and tighten the screw securely.



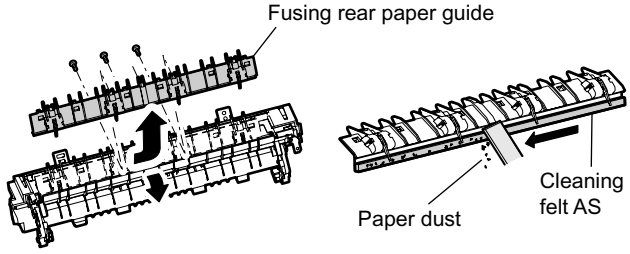
H. Separation pawl



I. Cleaning pad

How to clean paper dust on the fuser cleaning felt.

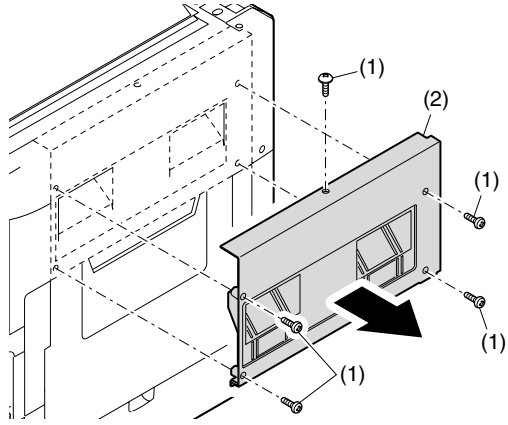
Remove Fusing rear paper guide from Fusing unit during every periodic maintenance (50K) and clean the collected paper dust using a ruler or other straight-edge device.
Replace the cleaning felt at 150k or earlier if damaged.

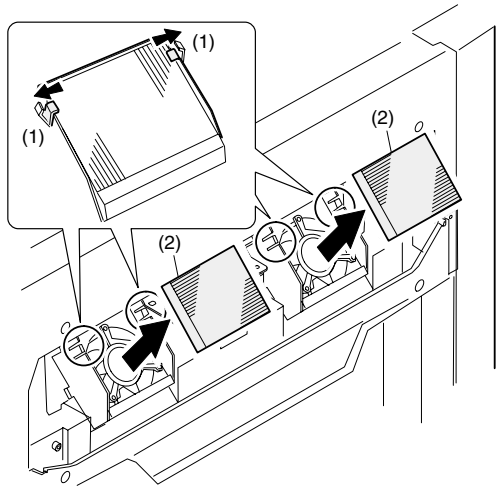


4. Paper exit section

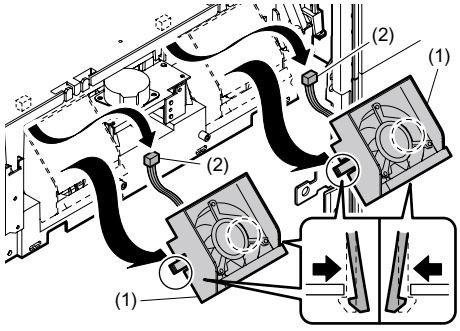
No.	Content
A	Ozone filter
B	Cooling fan
C	Paper exit unit
D	Transport roller
E	Paper exit roller
F	Paper exit interface P.W.B.
G	Paper exit sensor / duplex sensor

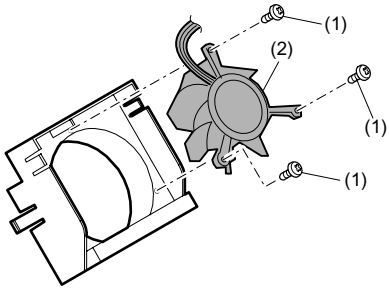
A. Ozone filter

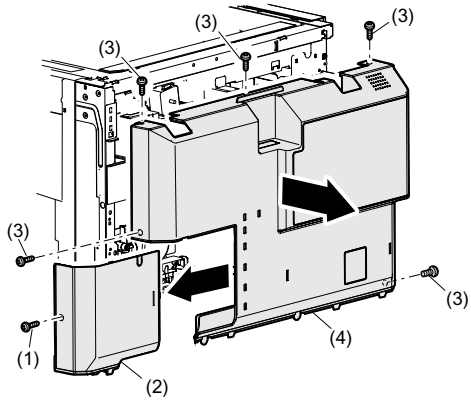




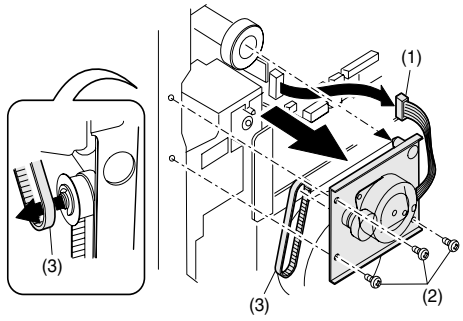
B. Cooling fan



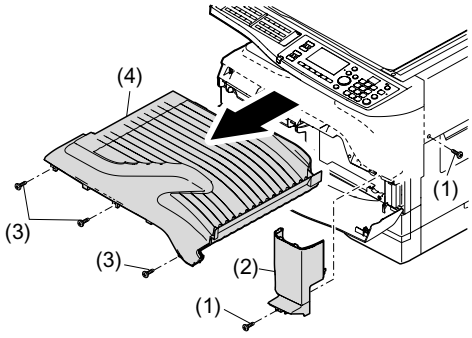


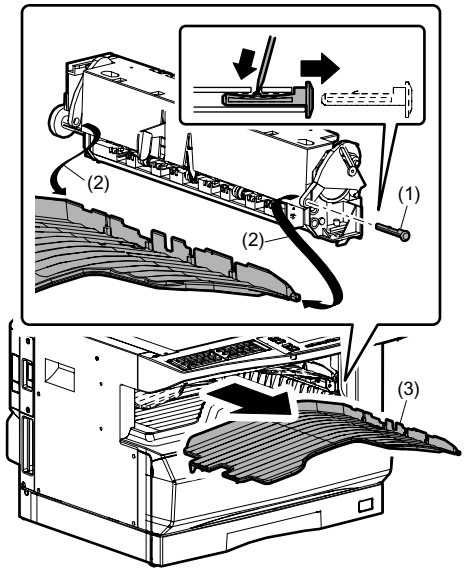


Duplex model

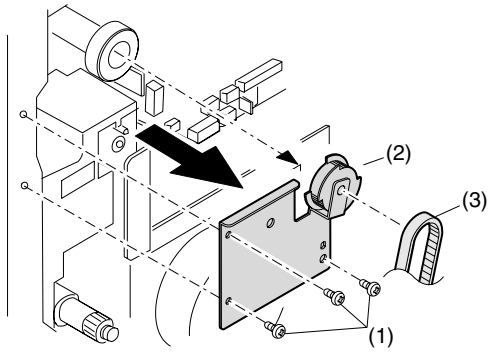


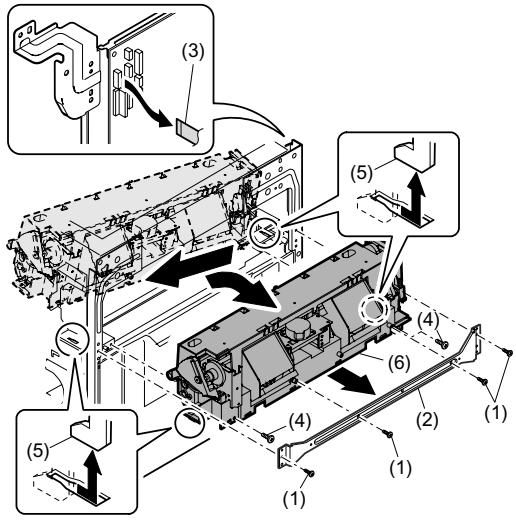
C. Paper exit unit



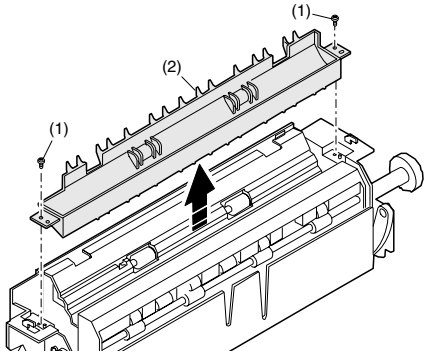


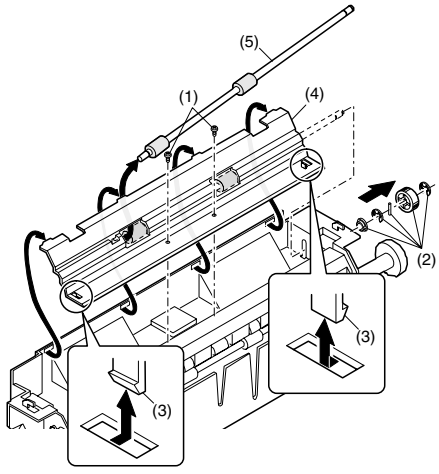
Simplex model





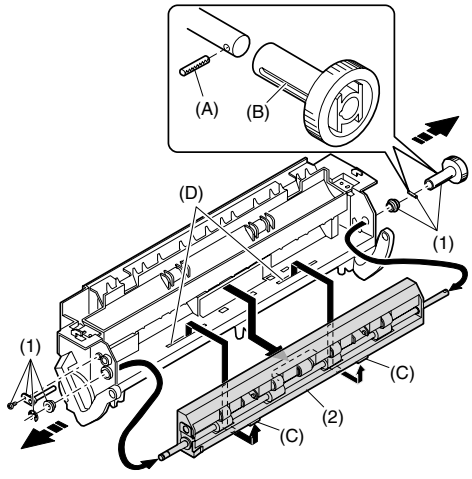
D. Transport roller

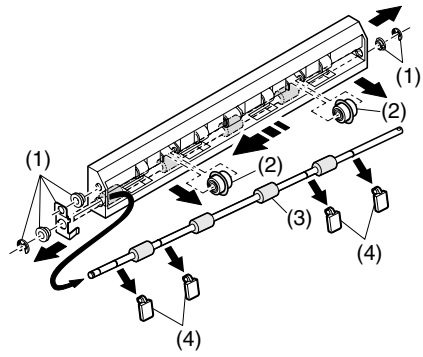




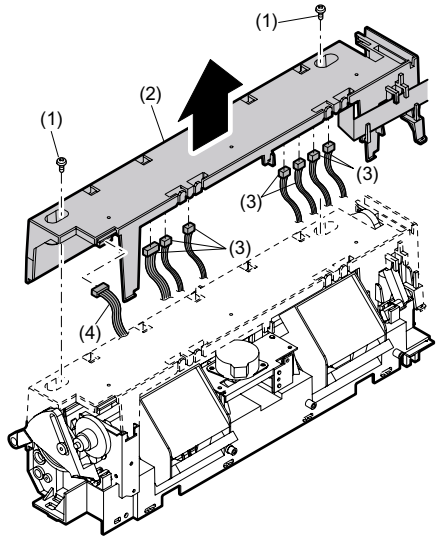
E. Paper exit roller

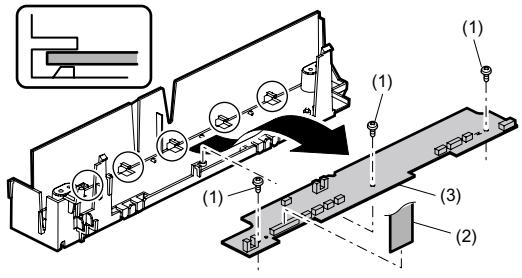
Assembly: Insert the spring pin so that the waveform (A) of the spring pin faces in the longitudinal direction of the paper exit drive gear long hole (B).<R>Be sure to insert two ribs (C) into the groove (D).





F. Paper exit interface PWB (when the job separator is installed)

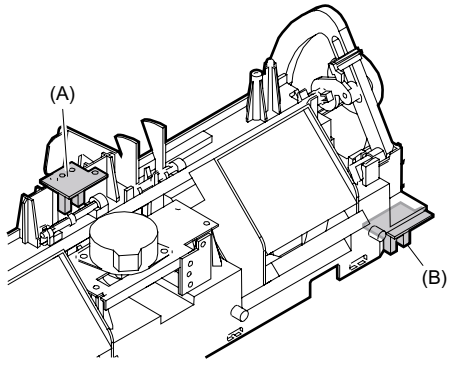




G. Paper exit sensor/duplex sensor

(A) Exit sensor

(B) Duplex sensor

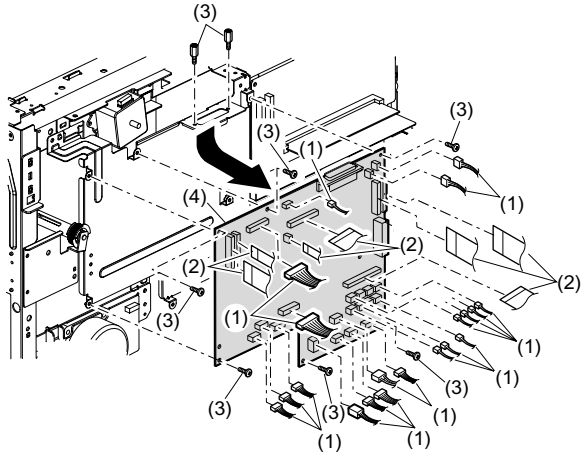


5. MCU

No.	Content
A	MCU disassembly

A. MCU disassembly

Note: When replacing the MCU PWB, be sure to replace the EEPROM of the MCU PWB to be replaced.



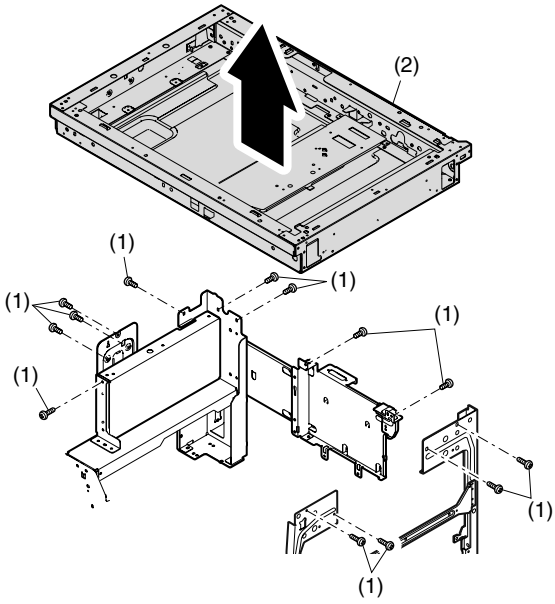
Note: When replacing the MCU PWB, be sure to restore the original jumper conditions.

6. Optical frame unit

No.	Content
A	Optical frame unit

A. Optical frame unit

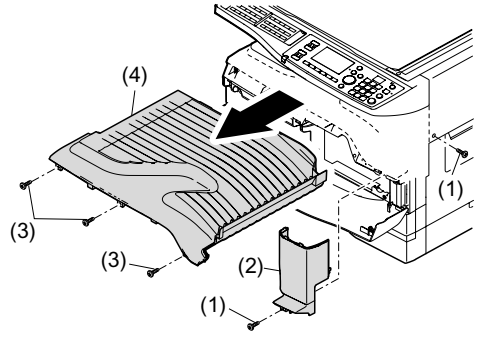
Installation: Install the optical unit in the sequence shown above.

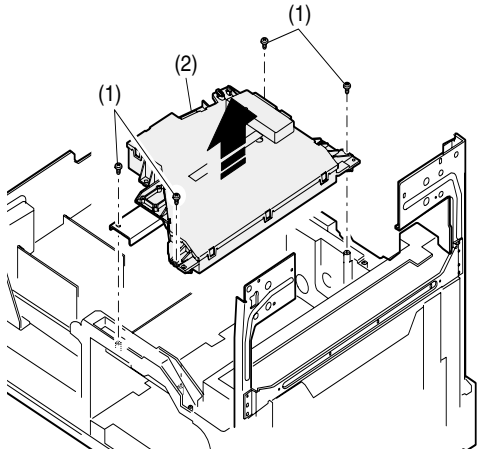


7. LSU

No.	Content
A	LSU unit

A. LSU unit





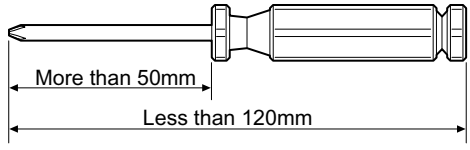
Note: Do not disassemble the LSU.

Note: When replacing the LSU, be careful not to touch the dust-shield glass.

Adjustment:

- Image lead edge position adjustment
- Image left edge position adjustment
- Paper off-center adjustment

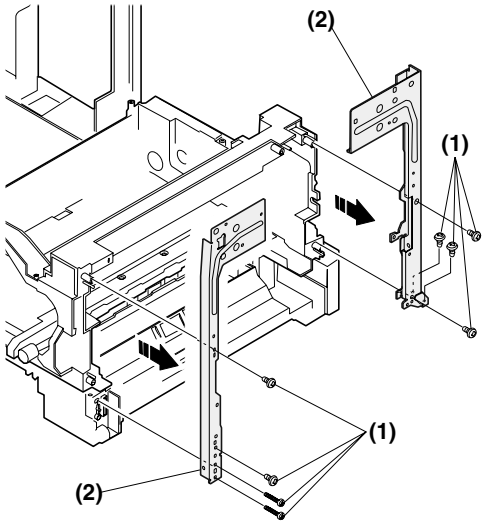
- **Size of the screwdriver for removing the LSU**



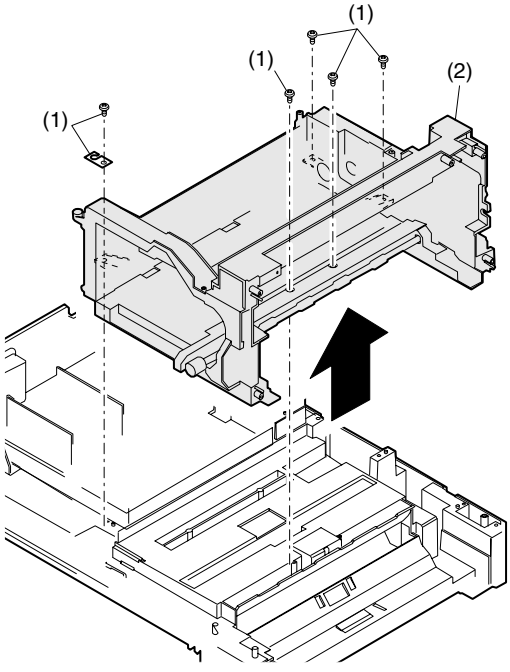
8. Tray paper feed section/Paper transport section

No.	Content
A	Middle frame unit
B	Drive unit
C	Solenoid (paper feed solenoid,, resist roller solenoid)
D	Resist roller clutch / Resist roller
E	Paper feed clutch/Paper feed roller (Semi-circular roller)

A. Middle frame unit

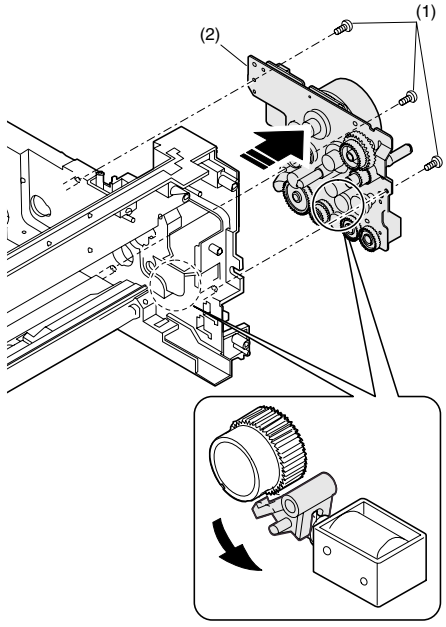


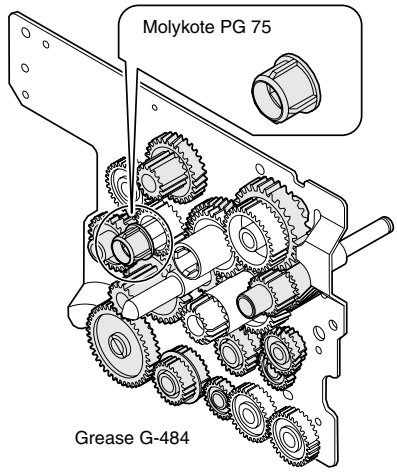
Assembly: Do not miss the door lock pawl.



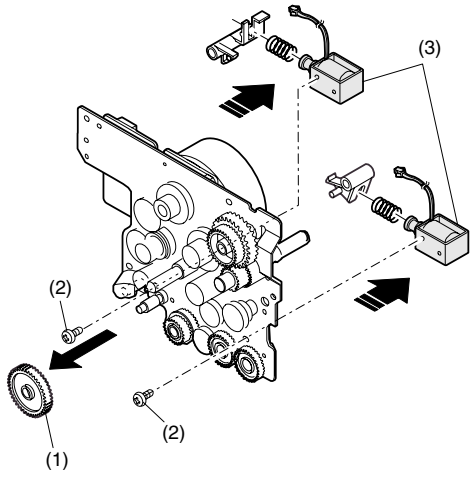
B. Drive unit

Assembly: Move down the clutch pawl as shown below, and avoid the clutch and install.

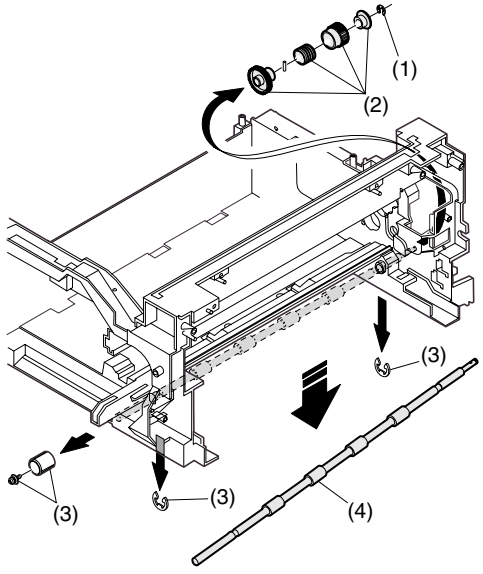




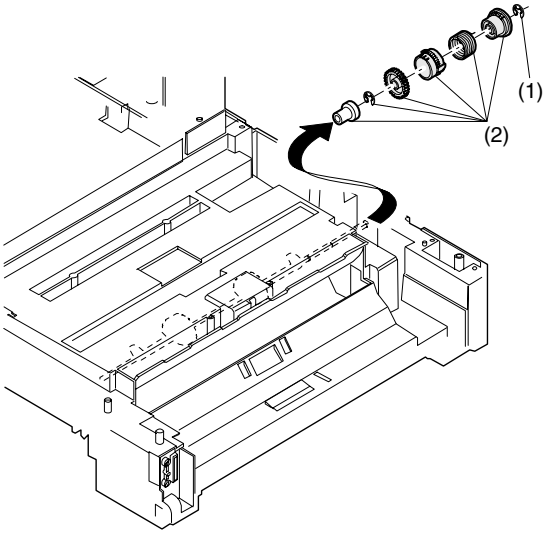
C. Solenoid (paper feed solenoid, resist roller solenoid)



D. Resist roller clutch/Resist roller



E. Paper feed clutch/Paper feed roller (Semi-circular roller)

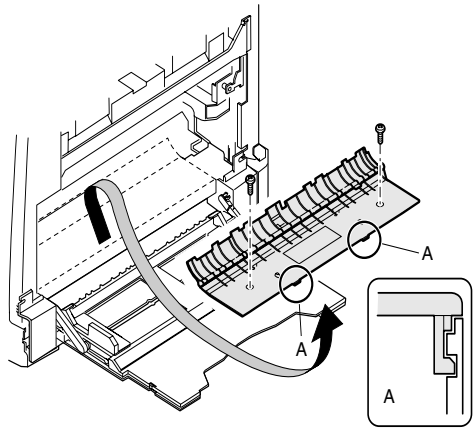


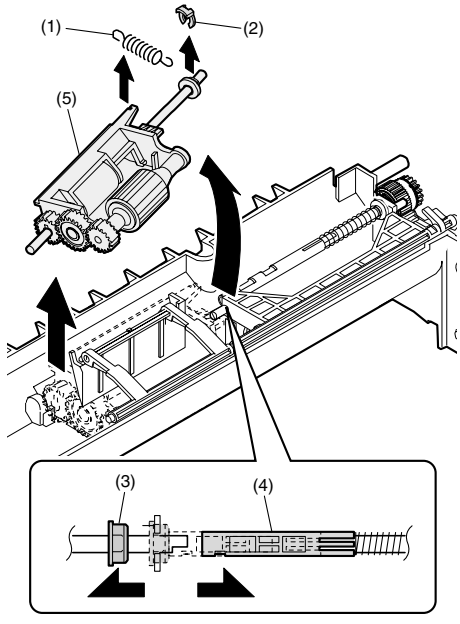
9. Manual multi paper feed section

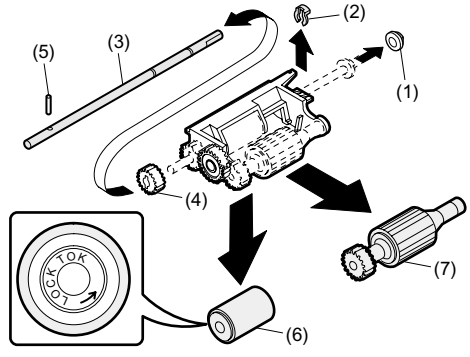
No.	Content
A	Manual transport roller/Manual paper feed roller
B	Manual multi paper feed
C	Manual feed solenoid
D	Manual transport clutch
E	Pressure plate unit
F	Manual paper feed clutch

A. Manual transport roller/Manual paper feed roller

Note: Push the lever at the right edge of the multi frame cover to the right upper side and remove it.

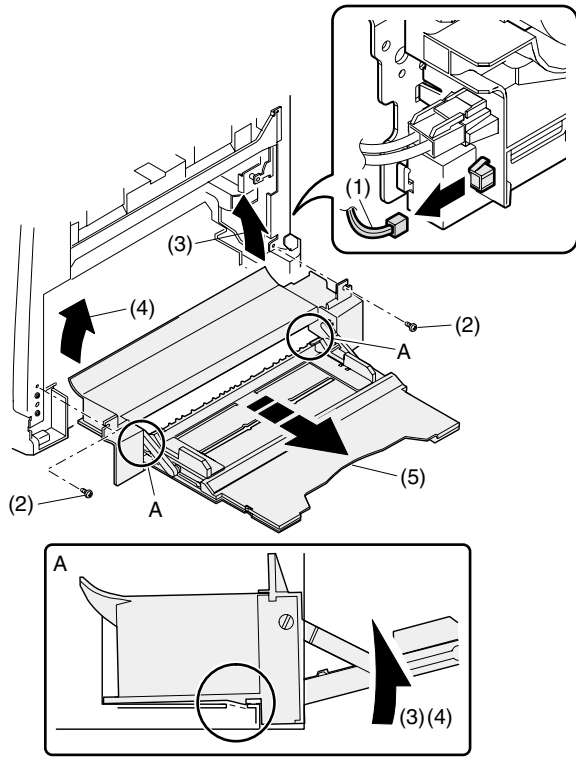




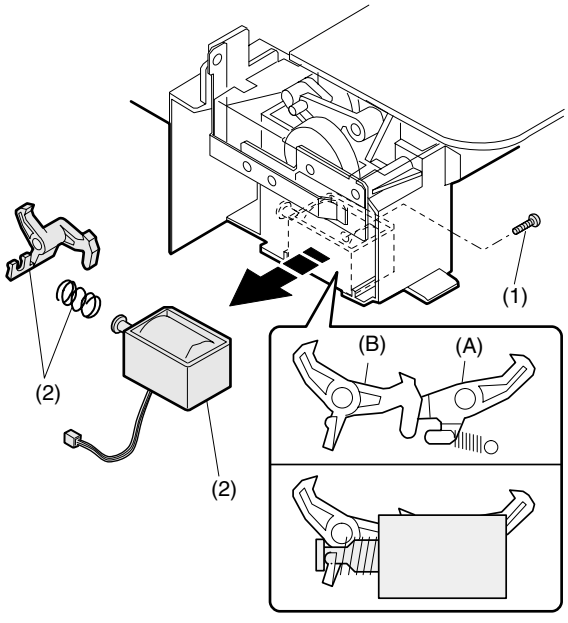


Installation: Be careful of the installing direction of the manual transport roller (6)

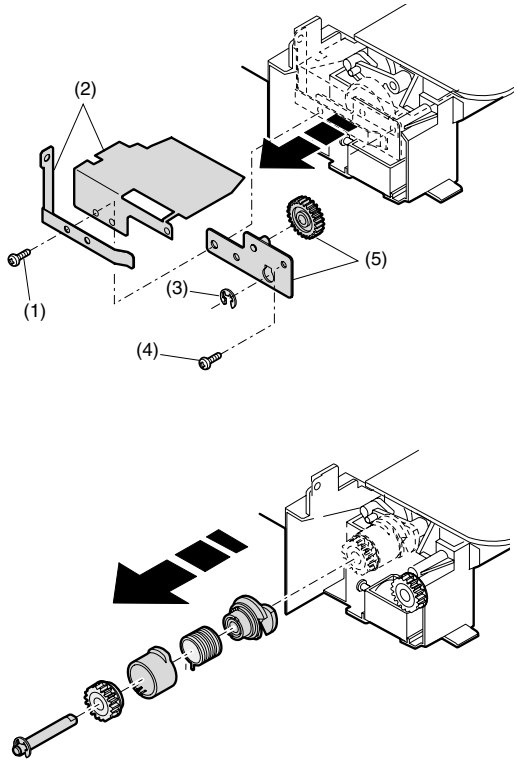
B. Manual multi paper feed



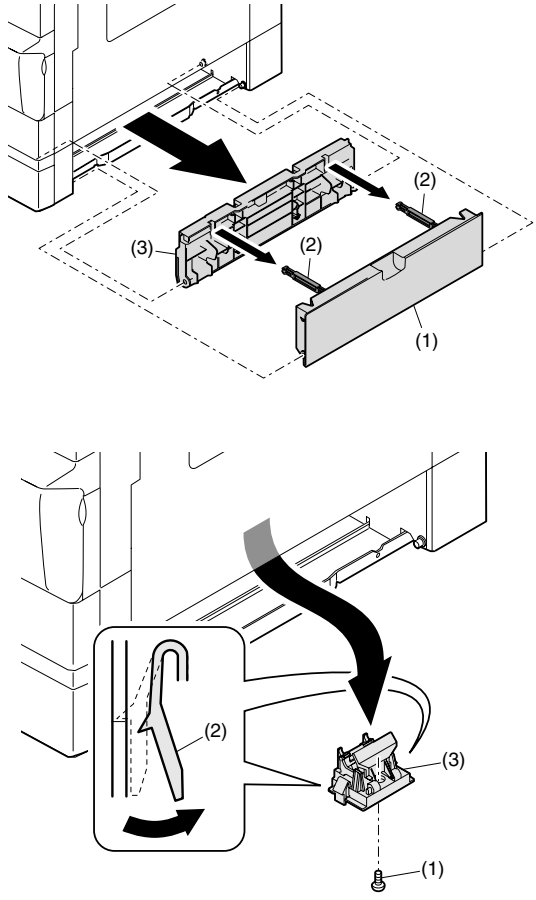
C. Manual feed solenoid



D. Manual transport clutch

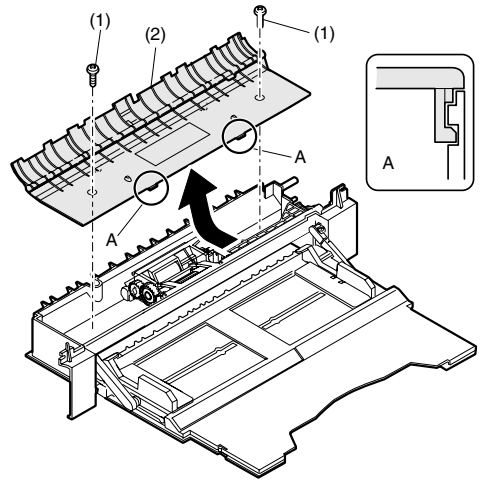


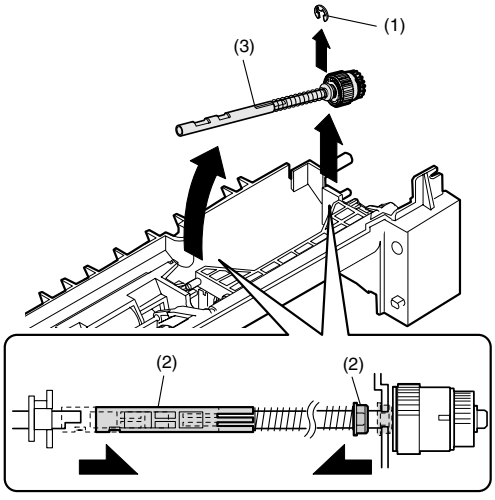
E. Pressure plate unit

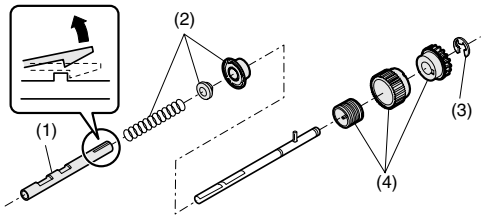


F. Manual paper feed clutch

Note: Push the lever at the right edge of the multi frame cover to the right upper side and remove it.



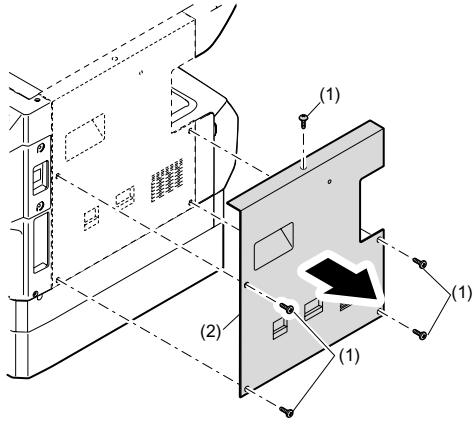


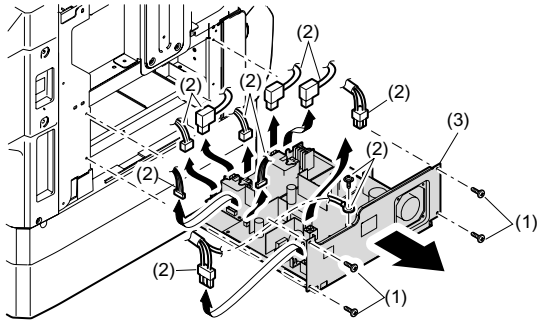


10.Power section

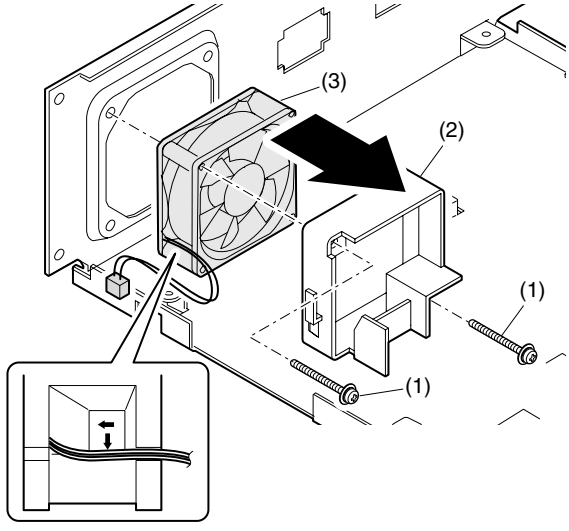
No.	Content
A	Power unit
B	Power fan
C	High voltage P.W.B.
D	Power P.W.B.
E	Power switch

A. Power unit

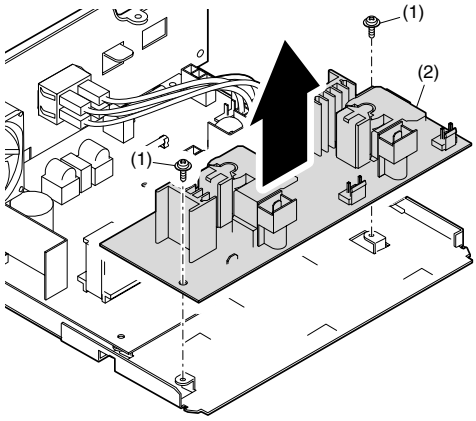




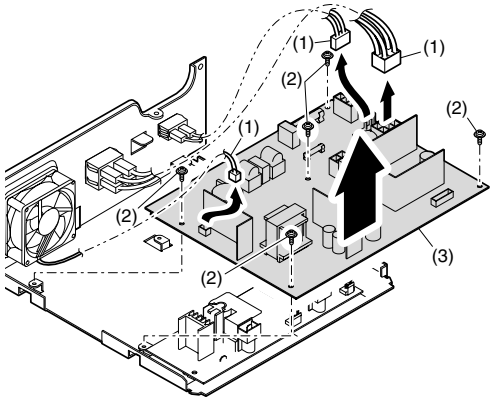
B. Power fan



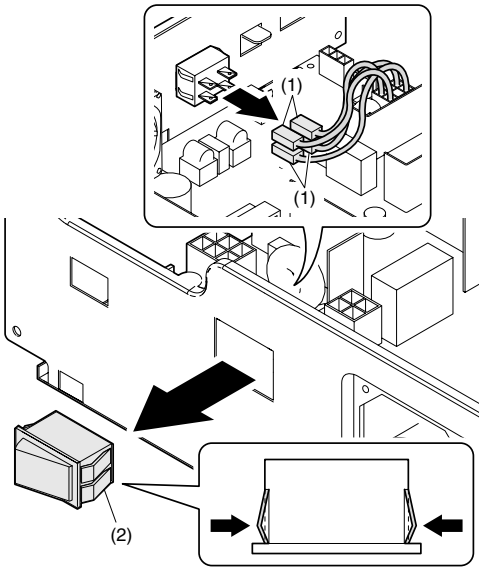
C. High voltage P.W.B.



D. Power P.W.B.



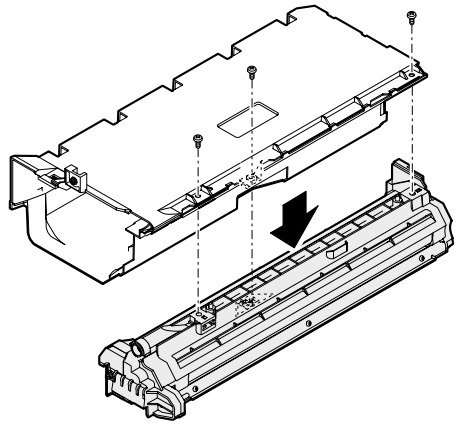
E. Power switch



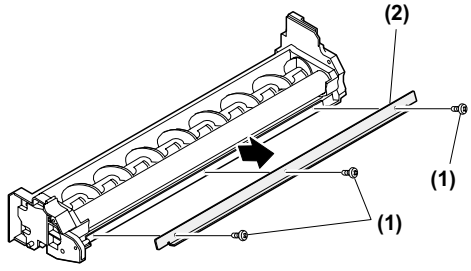
11.Developing section

No.	Contents
A	Developing box
B	Developing doctor
C	MG roller

A. Developing box

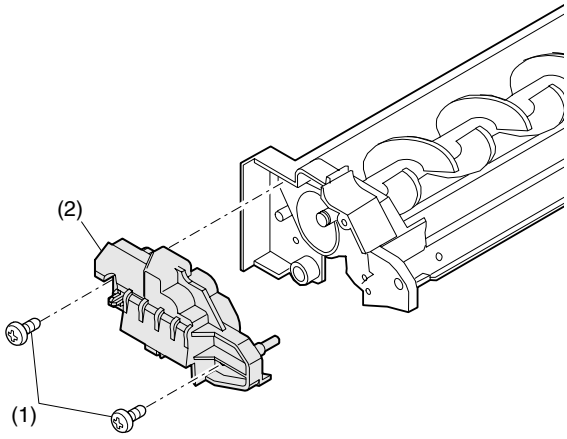


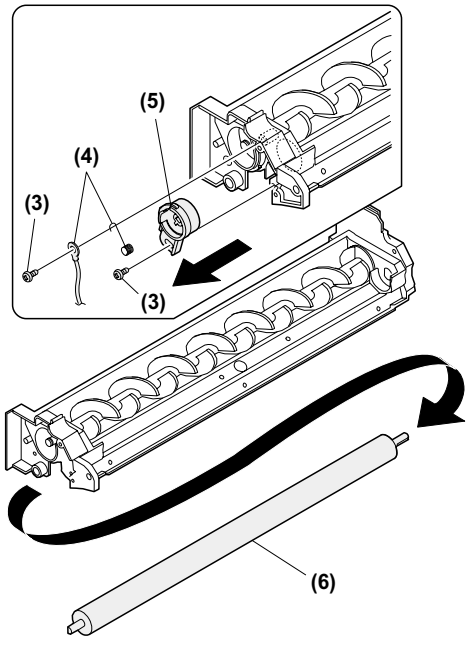
B. Developing doctor



Adjustment: Developing doctor gap adjustment

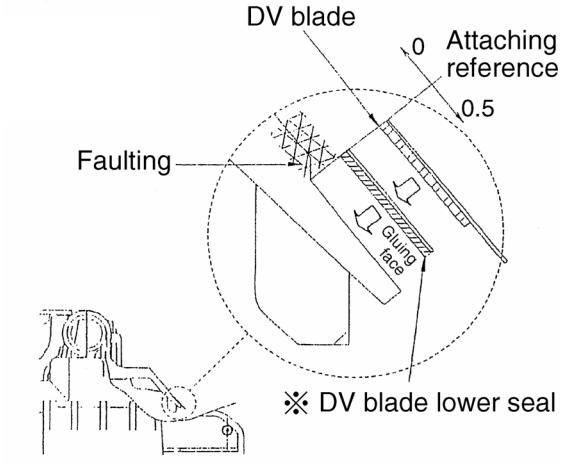
C. MG roller





Adjustment: MG roller main pole position adjustment

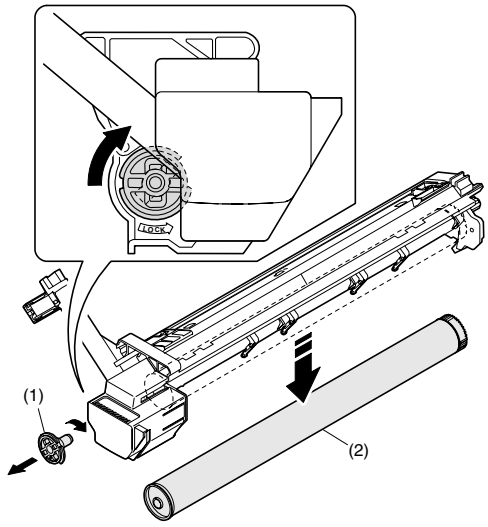
Note: Attach it to fit with the attachment reference when replacing the DV blade.



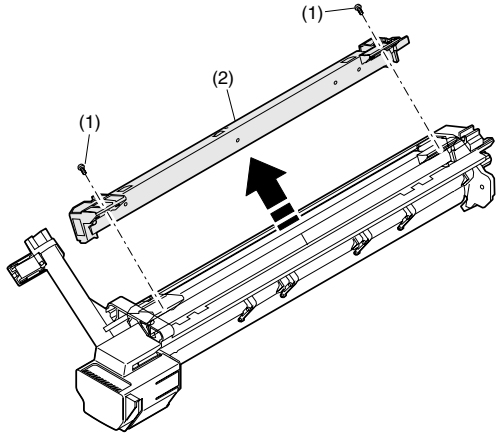
12.Process section

No.	Contents
A	Drum unit
B	Main charger unit
C	Cleaning blade

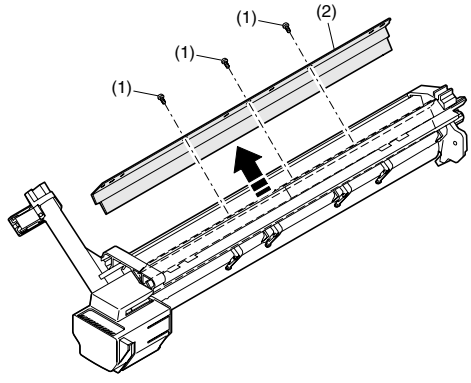
A. Drum unit



B. Main charger unit

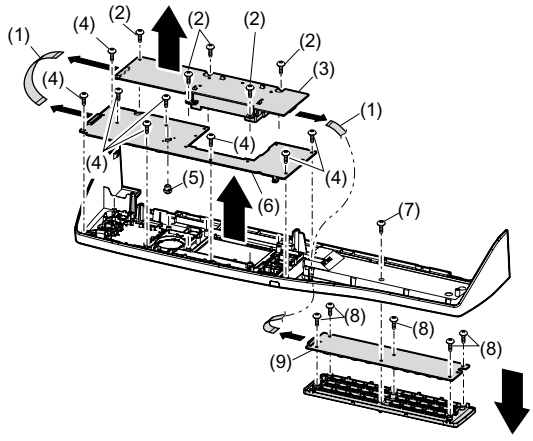


C. Cleaning blade

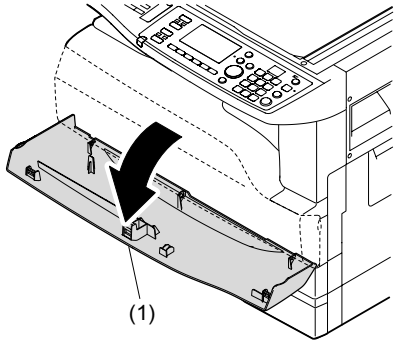


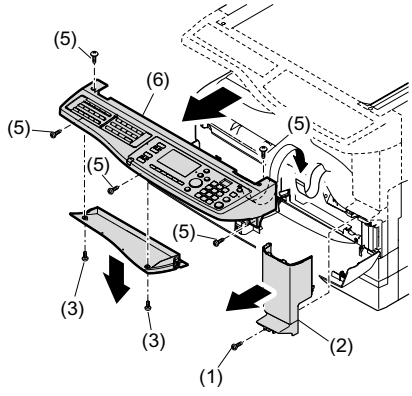
13.Others

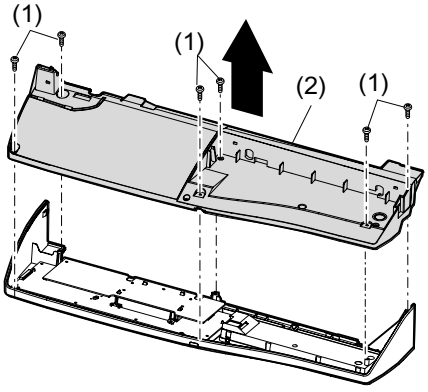
No.	Contents
A	Operation P.W.B.
B	Tray interface P.W.B.
C	2nd tray paper entry sensor / Paper empty sensor
D	2nd tray paper feed solenoid / Transport solenoid
E	2nd tray transport clutch
F	2nd tray transport roller
G	2nd tray paper feed clutch
H	2nd tray paper feed roller
I	Main motor
J	I/F P.W.B.
K	Paper entry sensor
L	Paper empty sensor
M	Paper feed roller



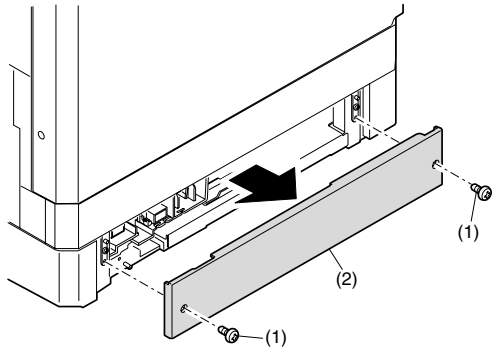
A. Operation P.W.B.

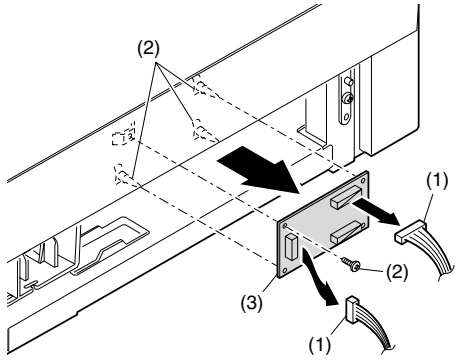




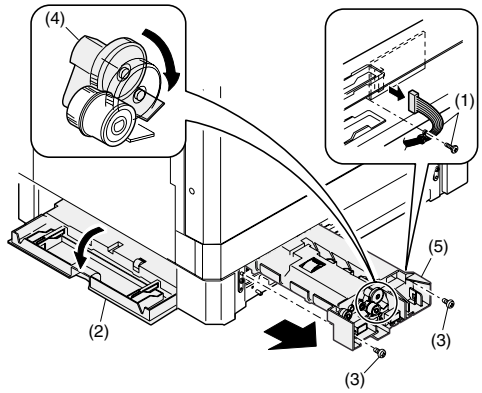


B. Tray interface P.W.B.

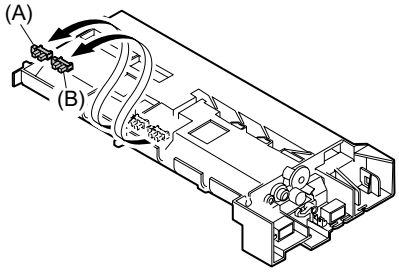




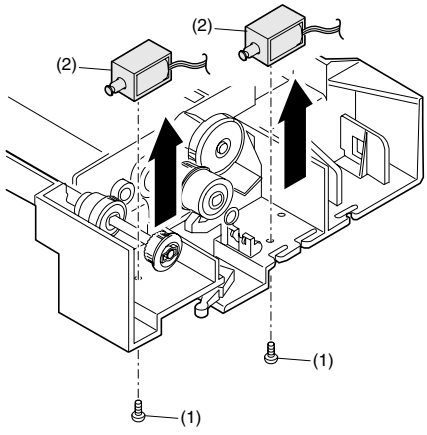
C. 2nd tray paper entry sensor / Paper empty sensor



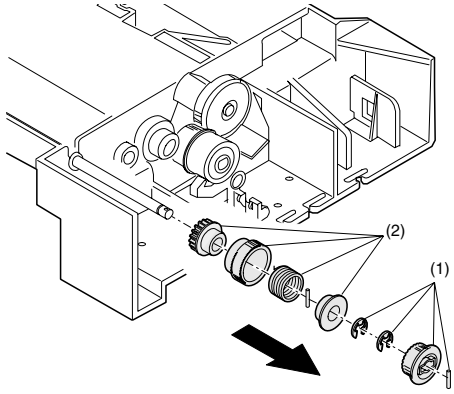
(A) 2nd tray paper entry sensor
(B) Paper empty sensor



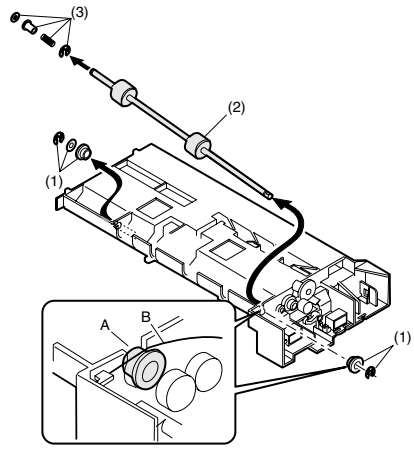
D. 2nd tray paper feed solenoid / Transport solenoid



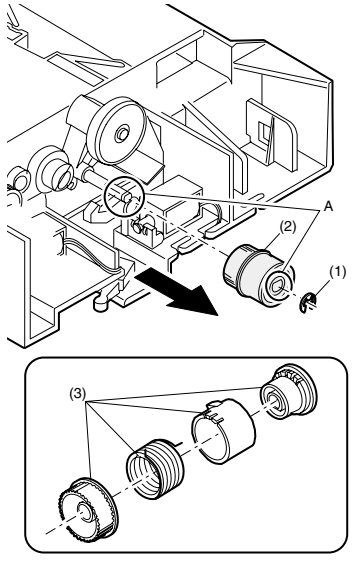
E. 2nd tray transport clutch



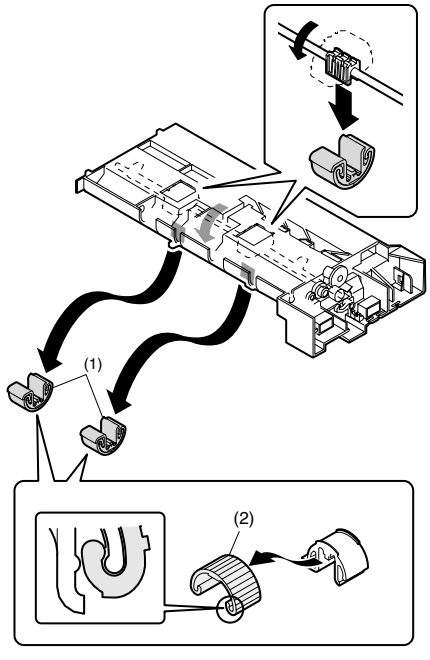
F. 2nd tray transport roller



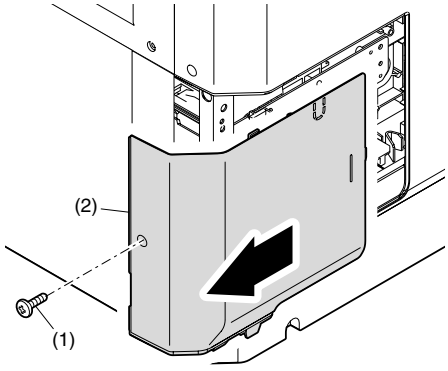
G. 2nd tray paper feed clutch

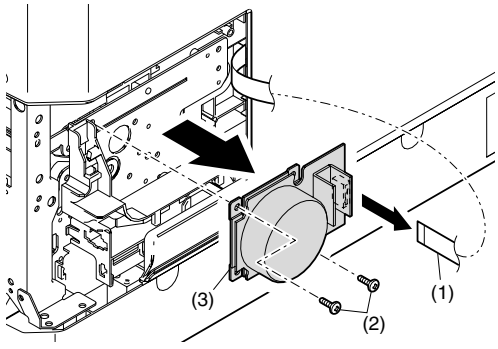


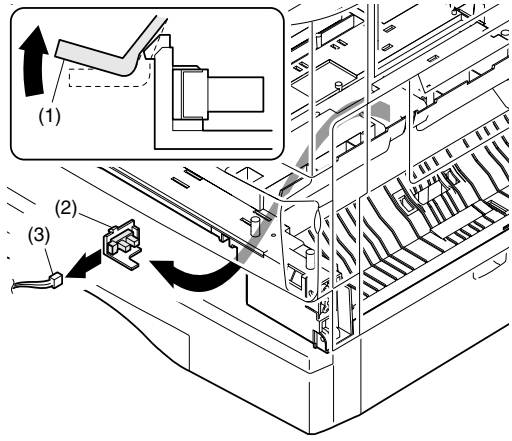
H. 2nd tray paper feed roller



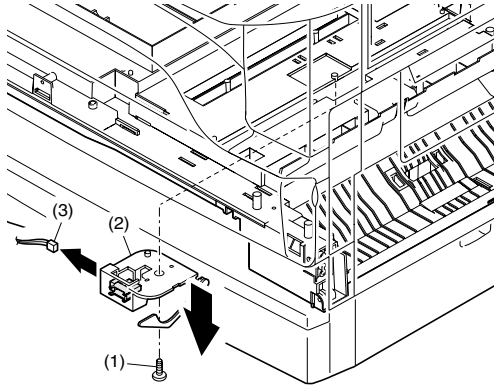
I. Main motor



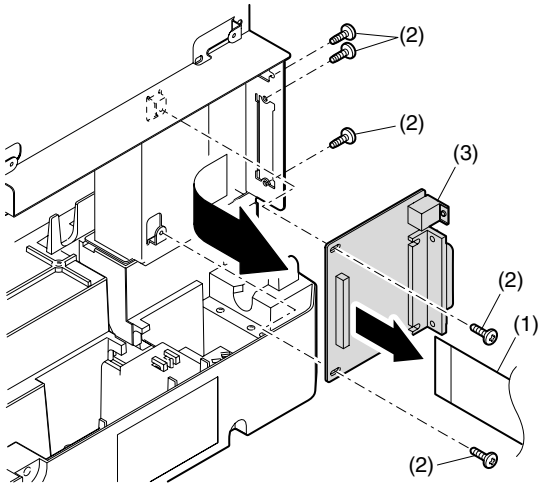




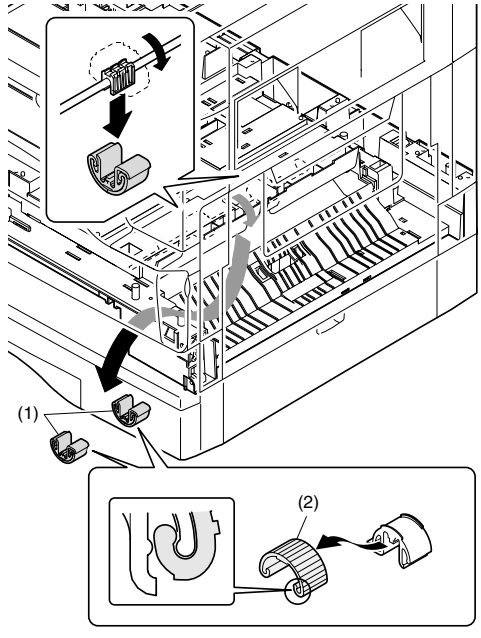
L. Paper empty sensor



J. I/F P.W.B.

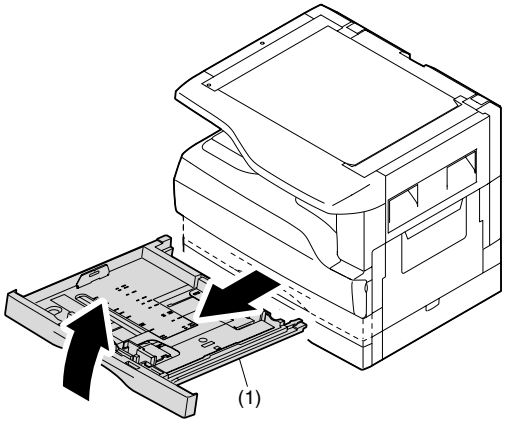


M. Paper feed roller



* When removing the paper feed roller, operate the paper feed clutch with SIM 6-1, and keep the paper feed roller down as shown in the figure above for operation.

K. Paper entry sensor



[11]KEY OPERATOR PROGRAM

1. Custom setting

KEY OPERATOR PROGRAM			Set value(Default)	Remark
KEY OPERATOR NUMBER CHANGE	KEY OPERATOR NUMBER CHANGE		00000	
ACCOUNT CONTROL	AUDITING MODE	Copy, Printer and Scanner		
	TOTAL/ACCOUNT			
	RESET ACCOUNT	Reset 1 Account, Reset All Account		
	ACCOUNT NUMBER CONTROL	Enter, Delete, Change Account Number		
	ACCOUNT LIMIT	Single Account Limit, All Account Limit		
	ACCOUNT NUMBER SECURITY		No (No warning)	
	CANCEL JOBS OF INVALID ACCOUNT		Cancel (Not inhibited)	
DEVICE CONTROL	WAITING COPY LAMP SETTING		ON*/OFF	
	OFFSET FUNCTION	UPPER TRAY, CENTER TRAY	Enable (The function works.)	
	MEMORY FOR PRINTER		30, 40, 50*, 60, 70%	
	USB2.0 MODE		Full speed mode*/High speed mode	
	RETURN FROM COPY MODE TIMING		0, 10, 30*, 60sec	
OPERATION SETTINGS	AUTO CLEAR		0, 10, 20, 60*, 90, 120sec	
	DISABLE DISPLAY TIMEOUT		Unchecked	
	LANGUAGE SETTING			
	MESSAGE TIME		Short (3sec), Normal (6sec)*, Long (9sec)	
	KEY TOUCH SOUND		Low*, High, Off	
	KEY TOUCH SOUND AT INITIAL POINT		Off (Check box unchecked)	
	KEY PRESS TIME		Minimum* 0.5, 1.0, 1.5, 2.0sec	
	DISABLE AUTO KEY REPEAT		OFF (The auto repeat functions.)	
	DISABLE PAPER SIZE SET		OFF (Paper size setting can be made.)	
ENERGY SAVE	AUTO POWER SHUT-OFF		On (Check box is checked)	
	AUTO POWER SHUT-OFF TIMER		5*, 30, 60, 120, 240min	
	PREHEAT MODE		1*, 5, 30, 60, 120, 240min	
	TONER SAVE MODE			excluding U.K
NETWORK SETTING	DHCP enable		ON (Automatic acquisition of IP address)	when the AR-NB3 is installed
	IP address enable			
	TCP/IP enable		ON (Protocol enable)	
	NetWare enable		ON (Protocol enable)	
	EtherTalk enable		ON (Protocol enable)	
	NetBEUI enable		ON (Protocol enable)	
COPY SETTING	EXPOSURE ADJUST	Original glass, Document feeder	Level 1, 2, 3*, 4, 5	
	MARGIN DEFAULT		AB system: 0, 5, 10*, 15, 20mm Inch system: 0, 1/4, 1/2*, 3/4, 1inch	
	ERASE ADJUST		AB system: 0, 5, 10*, 15, 20mm Inch system: 0, 1/4, 1/2*, 3/4, 1inch	
	CARD SHOT DEFAULT		AB system Y: 54mm, X: 86mm Inch system Y: 2 1/8inch, X: 3 3/8inch	
	DEFAULT TRAY SET		Tray 1*, 2, 3, 4, BYPASS TRAY	
	DEFAULT EXPOSURE		Auto*, TEXT, PHOTO	
	STREAM FEEDING		Check box unchecked	
	ROTATION COPY		Check box checked	
	SORT AUTO SELECT		No sort, Sort*	
	RESOLUTION IN AUTO/TEXT MODE		300*, 600dpi	
	PHOTO MODE DEFAULT		Pattern 1*, 2	
	LIMIT OF COPIES		99, 999*copies	
	DISABLE AUTO PAPER SELECTION		Check box unchecked	
	DISABLE 2-SIDED COPY		Check box unchecked	

[12]FLASH ROM VERSION UP PROCEDURE

1. Preparation

Write the download data (the file with the extension dwl) to the main body of AR-M207/M162/M165.

Necessary files for download

•Maintenance.exe (Maintenance software)
•ProcModelH.mdl
•ProcModelH.fmt
•ProcModelH.ini

Driver

•Drivers\2kXP\Mainte.inf (For XP/2000)
•Drivers\Win9xME\Mainte.inf (For ME/98)
•Drivers\Win9xME\UsbScan.sys (For ME/98)

Download File

•Download File:***.dwl

<Note>
• When creating a folder for a maintenance tool in the PC, be sure that no lengthy folder name is included in the path.

(Example)
Incorrect c:\Maintenance Download Tool
Correct c:\Maintenance\Downtool

2. Driver Installation procedure

<Note>
When the driver for the AR-M205/M160 is already installed, there is no need to install the driver.

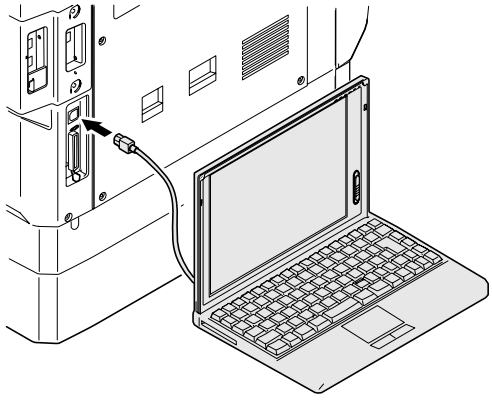
A. USB joint maintenance program installation

The driver is installed by plug and play.

B. Installation procedure on Windows XP

1) Machine side:
Executable by performing the Service Simulation No. 49-01 (Flash Rom program-writing mode).
(A word “Download mode.” appears on the operation panel to denote the download mode status.)

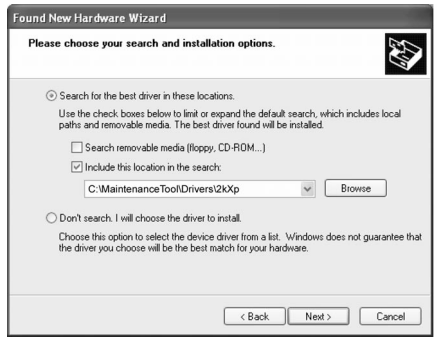
2) Connect the machine and the PC with a USB cable.
(Be sure to connect the USB cable to the main unit side. Connection to the optional dual function board cannot execute this function.)



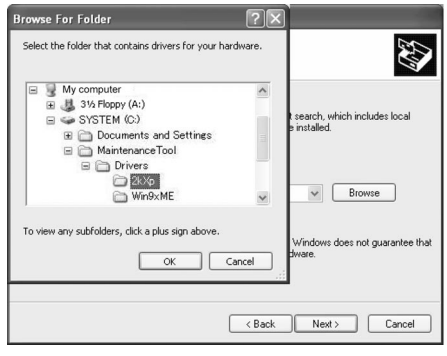
3) Check that the following display is shown.
Select "Install from a list or the specific location" and press the [Next] button.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
DOWNLOAD
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

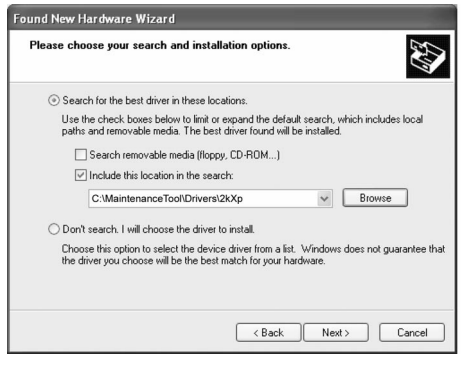
4) Select "Include this location in the search". If the retrieval area does not include the folder which includes the maintenance tool driver (Mainte.inf), select [Browse] button.
If the folder path is properly shown, press the [Next] button to go to procedure (7).


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\MaintenanceTool\Drivers\2kXp
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

5) Select the folder which includes the maintenance tool driver (Mainte.inf), and press the [OK] button.
(When the driver is included in the “C:\Maintenance Tool\Divers\2kxp”folder:)



6) Check that the path to the folder which includes the maintenance tool driver (Mainte.inf) is shown, and press the [Next] button.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\MaintenanceTool\Drivers\2kXp
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

7) Check that the following display is shown. Press the [Continue Anyway] button.

Hardware Installation
The software you are installing for this hardware:
Maintenance Tool Version 4.00 Generic USB Driver
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

8) When installation is completed, the following display is shown. Press the [Finish] button.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Maintenance Tool Version 4.00 Generic USB Driver
Click Finish to close the wizard.
< Back
Finish
Cancel

The installation procedure (on Windows XP) is completed with the above operation.

C. Installation procedure on Windows 2000

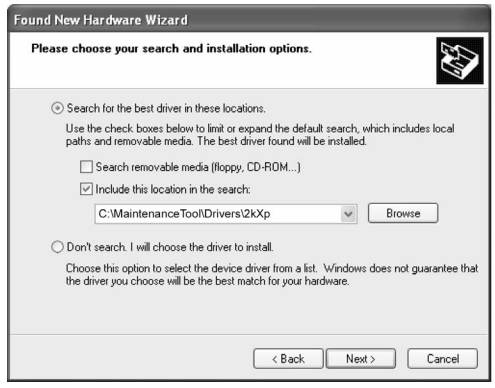
1) Machine side:
Executable by performing the Service Simulation No. 49-01 (Flash Rom program-writing mode).
(A word “Download mode.” appears on the operation panel to denote the download mode status.)

2) Connect the machine and the PC with a USB cable.
(Be sure to connect the USB cable to the main unit side. Connection to the optional dual function board cannot execute this function.)

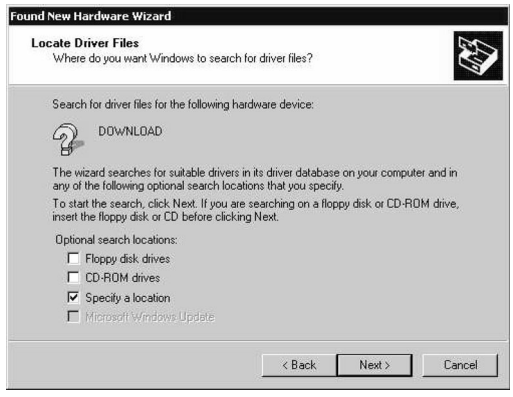
3) Check that the new hardware search wizard is shown. Press the [Next] button.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

4) Select "Search for a suitable driver for my device" and press the [Next] button.

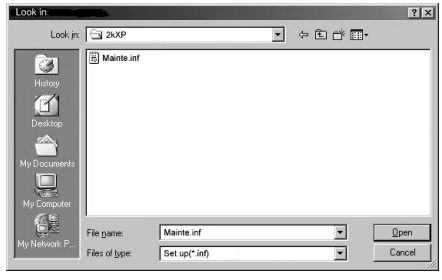

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\MaintenanceTool\Drivers\2kXp
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

5) Select "Specify a location" and press the [Next] button.

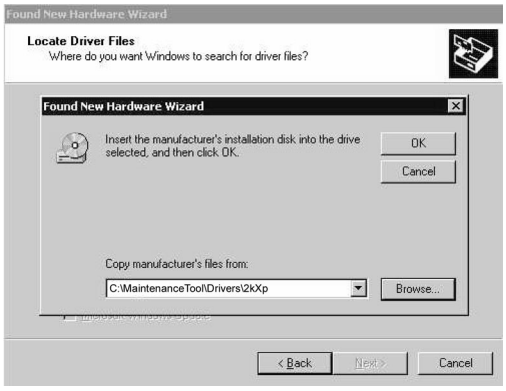

Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
DOWNLOAD
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

6) If the reference position is not the folder which includes the maintenance tool driver (Mainte.inf), select [Browse] button. If the reference position is the folder which includes the maintenance tool driver, press [OK] button to go to procedure (9).

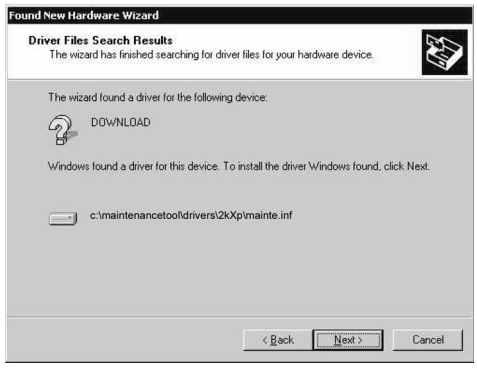
7) Specify the folder which includes the maintenance tool driver (Mainte.inf), and press [Open] button.



8) Check to confirm that the path to the folder which includes the maintenance tool driver (Mainte.inf) is displayed, and press [OK] button.
(Supposing that the maintenance tool driver is included in the folder of “C:\Maintenance Tool\Drivers\2kXp”.



9) Press the [Next] button, and installation is started.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
DOWNLOAD
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\maintenancetool\drivers\2kXp\mainte.inf
< Back
Next >
Cancel

10) When installation is completed, the following display is shown.
Press the [Finish] button.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
Maintenance Tool Version 4.00 Generic USB Driver
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

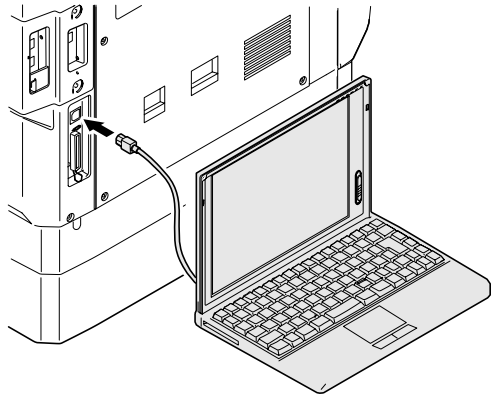
11) When the indication is displayed to reboot the PC, press [YES] button and boot the PC.

The installation procedure of the joint maintenance program on Windows 2000 is completed with the above operation.

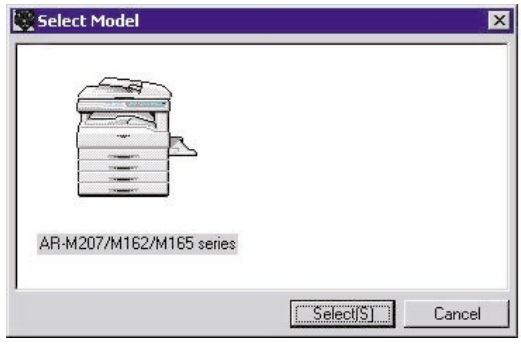
3. Download procedure

1) Main body side:
Executable by performing the Service Simulation No. 49-01 (Flash Rom program-writing mode).
(A word “Download mode.” appears on the operation panel to denote the download mode status.)

2) Connect the machine and the PC with a USB cable.
(Be sure to connect the USB cable to the main unit side. Connection to the optional dual function board cannot execute this function.)

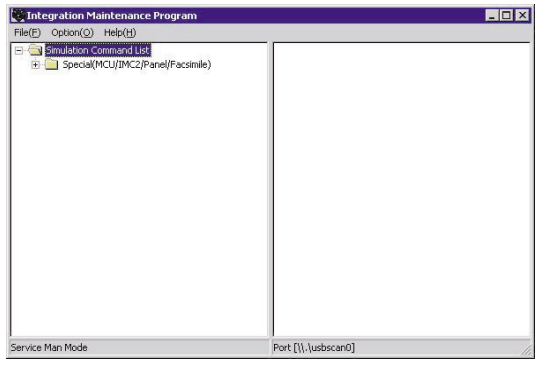


3) PC side:
Boot "Maintenance.exe" and select [AR-M207/M162/M165 Series] on the model selection menu.

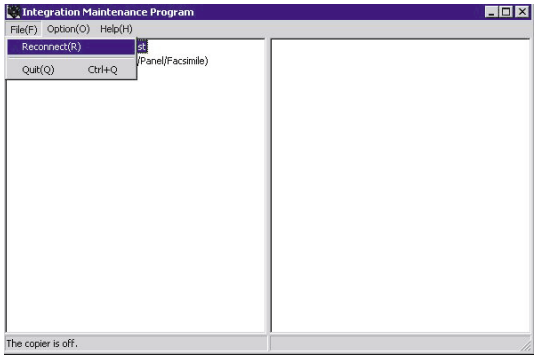


<Sample display>

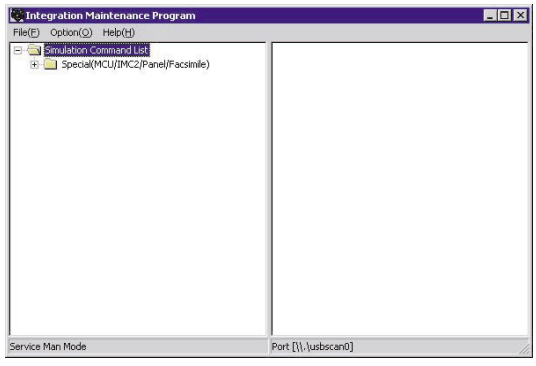
4) PC side:
Check to confirm that "Simulation Command List" tree is displayed on the integrated maintenance program.



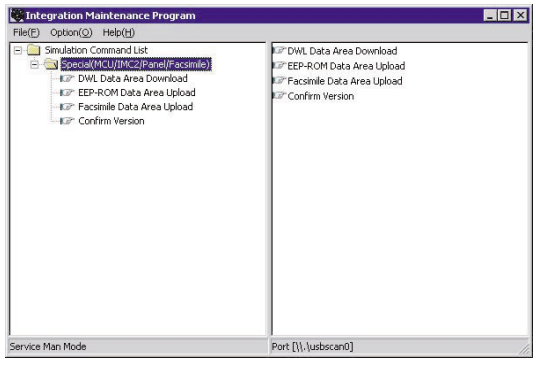
5) PC side:
If "The copier is off." is displayed on the left lower side after booting the integrated maintenance program, select [File] and then [Reconnect] on the menu bar.



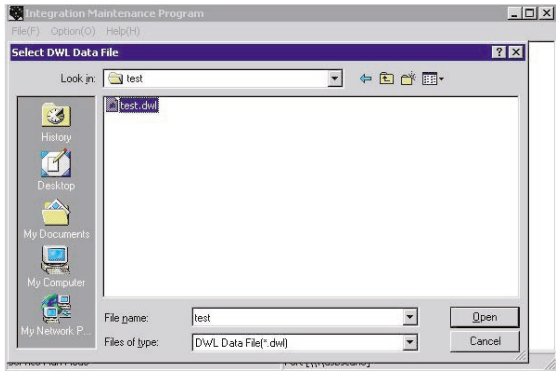
6) PC side:
Check to confirm that the tree is displayed on [Special (MCU/IMC2/ Panel/ Facsimile)] of the integrated maintenance program. If the tree is not displayed, check that the USB is properly connected and select [Reconnect] again in the previous procedure of (5).



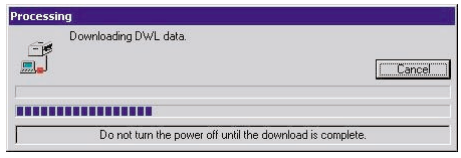
7) PC side:
Double click [Special (MCU/IMC2/Panel/Facsimile)] on the main tree items to extend the sub tree items, and select [DWL Data Area Download].



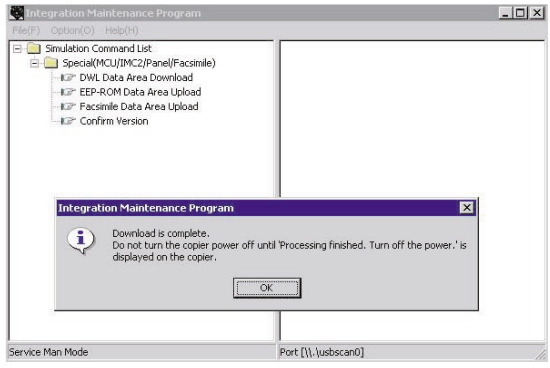
8) PC side:
Specify the download file (*.dwl).



9) PC side:
When the DWL data file is specified, the DWL data file is transferred from the PC to the machine. Downloading is proceeded automatically.



10) PC side:
When the message below is displayed, download is completed.
Completion message:
Download is completed. Do not turn the copier power off until “Processing finished. Turn off the power.” is displayed on the copier.


Integration Maintenance Program
Simulation Command List
Special(MCU/IMC2/Panel/Facsimile)
DWL Data Area Download
EEP-ROM Data Area Upload
Facsimile Data Area Upload
Confirm Version
Integration Maintenance Program
Download is complete.
Do not turn the copier power off until 'Processing finished. Turn off the power.' is displayed on the copier.
OK
Service Man Mode
Port [\\.\usbscan0]

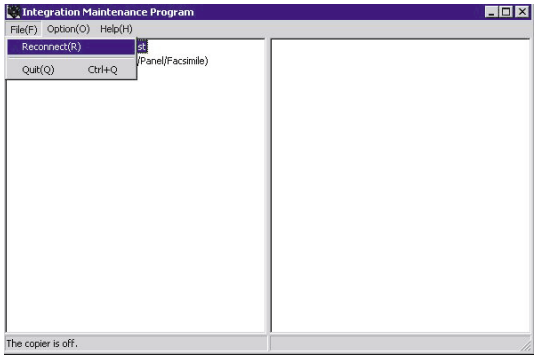
NOTE (Important):
- Be sure that the power is not turned off and the USB cable is not removed until the word "OFF" appears.

11) Main body side:
Wait until the word “Processing finished.Turn off the power.” appears on the operation panel.
The appearance of “Processing finished.Turn off the power.” indicates the completion of the download (writing into ROM).
Turn the power off and the USB cable can be removed at this point.

12) Terminate the maintenance program, and turn on the power of the main body.

NOTE:

• For making a second connection with another machine, select the [File] and [Reconnect] in the menu bar on the maintenance program at the time of the USB being re-connected. Repeat the previous procedures from the above 5).



*** Forbidden actions while downloading (Important)**

Failure in the download concerned may not allow you to conduct the subsequent download procedures. Added care should be taken to avoid having the situation below arise while downloading.

•Switching off the main body of AR-M207/M162/M165.

•Disconnecting the download cable (USB cable).

*** If the above inhibit item occurs during downloading:**

Turn OFF and ON the power.

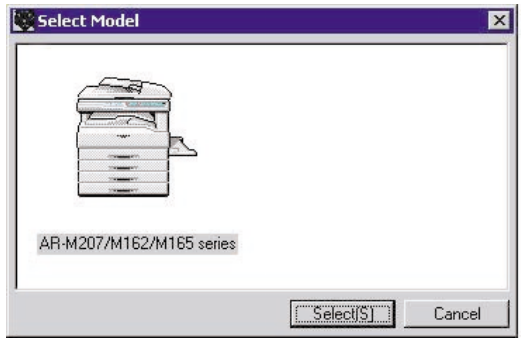
1) If “Download mode.” (which means downloading) is displayed on the operation panel of the machine, perform downloading again.
2) If “Download mode.” (which means downloading) is not displayed on the operation panel of the machine, turn OFF the power, and press and hold the 4 key and the CA key and turn ON the power. If, then, “Download mode.” (which means downloading) is displayed on the operation panel LED of the machine, perform downloading again.
   If “Download mode.” is still not displayed, the MCU/Panel/IMC2/Fax must be replaced.

4.Version confirming procedure

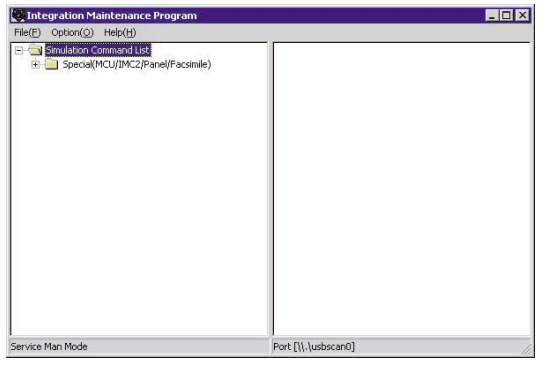
1) Machine side:
   Execute the service simulation No. 49-01 (Flash ROM program writing mode).
   (A word “Download mode.” appears on the operation panel to denote the download mode status.)

2) Connect the main unit and the PC with a USB cable. (Be sure to connect the USB cable to the main unit side. Connection to the optional dual function board cannot execute this function.)

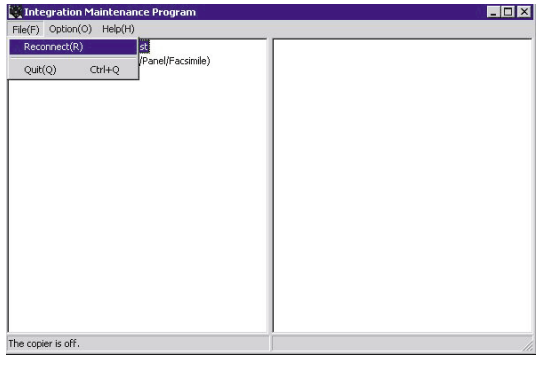
3) PC side:
   Boot "Maintenance.exe" and select [AR-M207/M162/M165 Series] on the model selection menu.



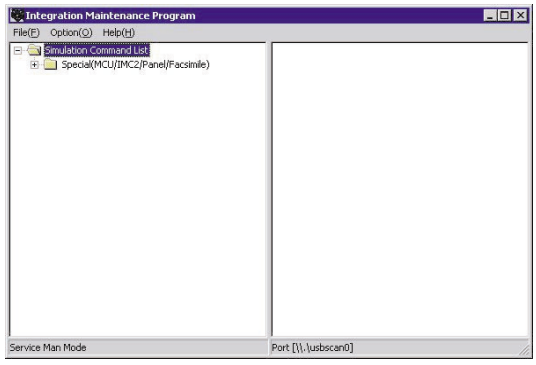
4) PC side:
   Check to confirm that "Simulation Command List" tree is displayed on the integrated maintenance program.



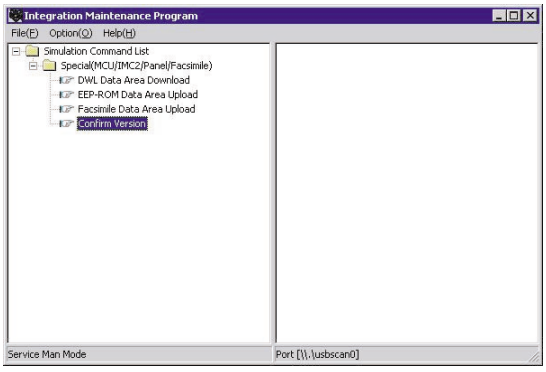
5) PC side:
   If "The copier is off." is displayed on the left lower side after booting the integrated maintenance program, select [File] and then [Reconnect] on the menu bar.



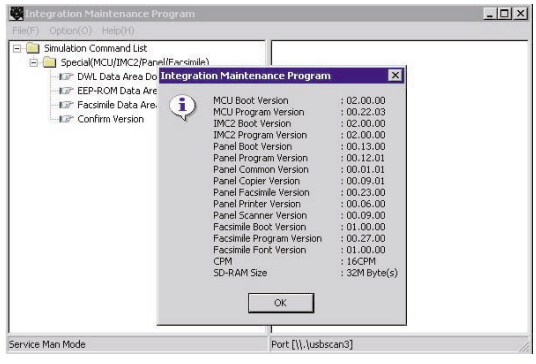
6) PC side:
Check to confirm that the tree is displayed on [Special (MCU/IMC2/ Panel/ Facsimile)] of the integrated maintenance program. If the tree is not displayed, check that the USB is properly connected and select [Reconnect] again in the previous procedure of (5).



7) PC side:
Double click [Special (MCU/IMC2/Panel/Facsimile)] on the main tree items to extend the sub tree items, and select [Confirm version].



8) Check to confirm that the display below is indicated.


Integration Maintenance Program
Simulation Command List
Integration Maintenance Program
MCU Boot Version : 02.00.00
MCU Program Version : 00.22.03
IMC2 Boot Version : 02.00.00
IMC2 Program Version : 02.00.00
Panel Boot Version : 00.13.00
Panel Program Version : 00.12.01
Panel Common Version : 00.01.01
Panel Copier Version : 00.09.01
Panel Facsimile Version : 00.23.00
Panel Printer Version : 00.06.00
Panel Scanner Version : 00.09.00
Facsimile Boot Version : 01.00.00
Facsimile Program Version : 00.27.00
Facsimile Font Version : 01.00.00
CPM : 16CPM
SD-RAM Size : 32M Byte(s)
OK
Service Man Mode
Port [\\.\usbscan3]

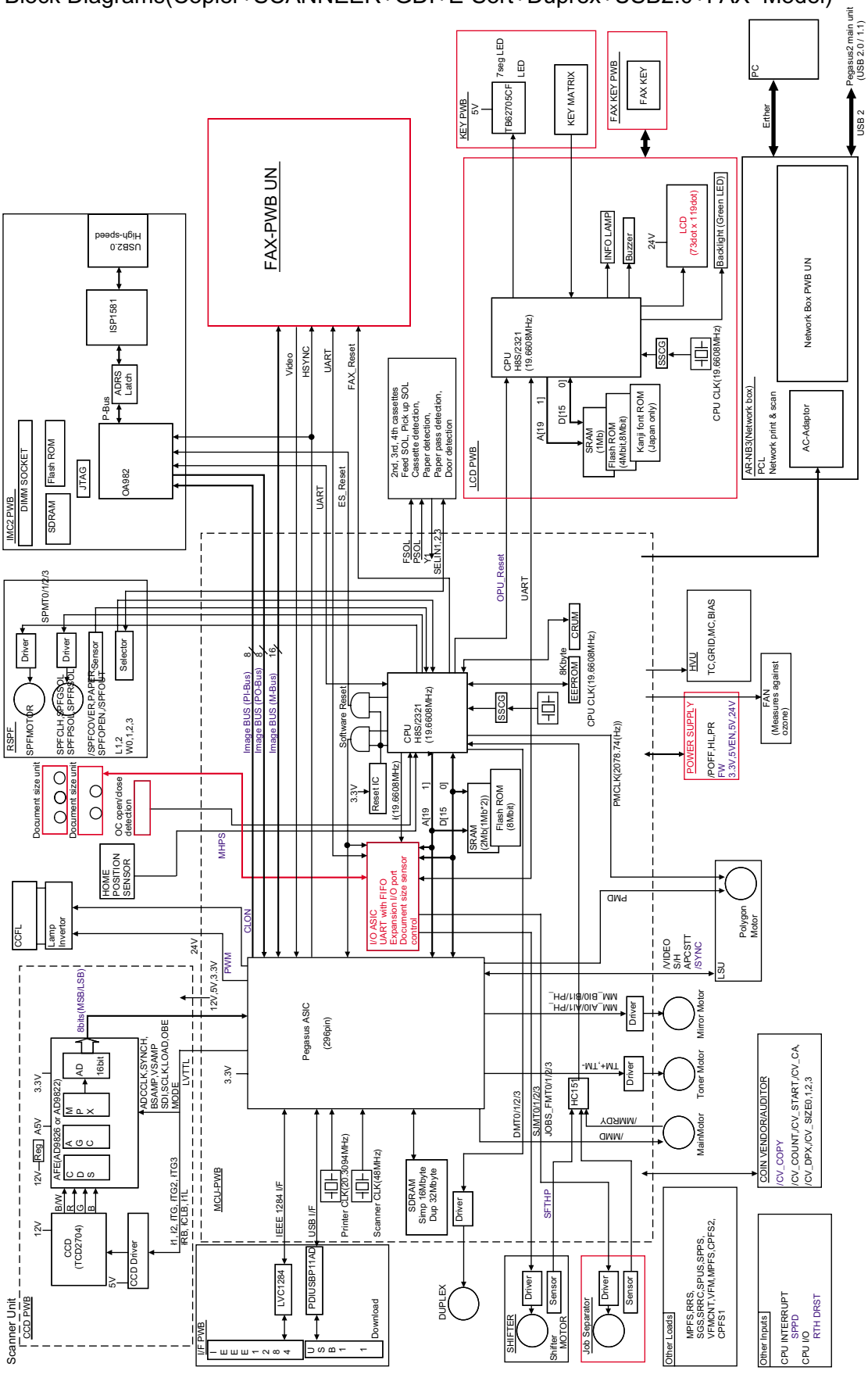
Version confirming is completed with the following procedures:

- In version confirming, "**.**.**" means that connection is not made with the MCU PWB or that download is not performed. (The above figure shows the case where the FAX PWB is not installed.)
- When download is completed, the version number is displayed such as the MCU boot version and the MCU program version.
- The CPM and the SD-RAM size are displayed when the MCU/Panel PWB is installed and the boot section operates normally.

[13] ELECTRICAL SECTION

1. Block diagram

Block Diagrams(Copier+SCANNEER+GDI+E-Sort+Duprex+USB2.0+FAX Model)



2. Circuit descriptions

A. Main PWB (MCU)

(1) General

The MCU PWB is composed of:

- CPU peripheral sections which perform mechanical sequence control and function job management
- Image process ASIC which performs image process, CCD control, LSU control, and print control
- Motor control circuit
- Mechanical load, sensor I/O circuit

It controls the processes for copying, the transport loads, fusing, the optical system, the operation panel, and the option PWB.

(2) CPU signal table (H8S/2321)

No.	SIGNAL	In/Out	DESCRIPTION
1	PG3/CS1	Out	ChipSelect for SRAM
2	PG4/CS0	Out	ChipSelect for ROM
3	Vss	GND	Ground
4	NC	GND	Ground
5	Vcc	3.3V	Power
6	PC0/A0	Pull-Up	Address Bus
7	PC1/A1	Out	Address Bus
8	PC2/A2	Out	Address Bus
9	PC3/A3	Out	Address Bus
10	Vss	GND	Ground
11	PC4/A4	Out	Address Bus
12	PC5/A5	Out	Address Bus
13	PC6/A6	Out	Address Bus
14	PC7/A7	Out	Address Bus
15	PB0/A8	Out	Address Bus
16	PB1/A9	Out	Address Bus
17	PB2/A10	Out	Address Bus
18	PB3/A11	Out	Address Bus
19	Vss	GND	Ground
20	PB4/A12	Out	Address Bus
21	PB5/A13	Out	Address Bus
22	PB6/A14	Out	Address Bus
23	PB7/A15	Out	Address Bus
24	PA0/A16	Out	Address Bus
25	PA1/A17	Out	Address Bus
26	PA2/A18	Out	Address Bus
27	PA3/A19	Out	Address Bus
28	Vss	GND	Ground
29	PA4/A20/IRQ4	Pull-Up	Address Bus
30	PA5/A21/IRQ5	In	EXT-PCB Wake Up Interrupt
31	PA6/A22/IRQ6	In	SPF Paper Detect Interrupt
32	PA7/A23/IRQ7	In	ASIC Interrupt
33	P67/IRQ3/CS7	In	Mirror Home Position Interrupt
34	P66/IRQ2/CS6	In	ASIC Interrupt
35	Vss	GND	Ground
36	Vss	GND	Ground
37	P65/IRQ1	In	Zero Cross Interrupt
38	P64/IRQ0	In	ASIC Interrupt
39	Vcc	3.3V	Power
40	PE0/D0	In/Out	Data Bus
41	PE1/D1	In/Out	Data Bus
42	PE2/D2	In/Out	Data Bus
43	PE3/D3	In/Out	Data Bus
44	Vss	GND	Ground
45	PE4/D4	In/Out	Data Bus
46	PE5/D5	In/Out	Data Bus
47	PE6/D6	In/Out	Data Bus
48	PE7/D7	In/Out	Data Bus
49	PD0/D8	In/Out	Data Bus
50	PD1/D9	In/Out	Data Bus
51	PD2/D10	In/Out	Data Bus
52	PD3/D11	In/Out	Data Bus
53	Vss	GND	Ground
54	PD4/D12	In/Out	Data Bus
55	PD5/D13	In/Out	Data Bus
56	PD6/D14	In/Out	Data Bus
57	PD7/D15	In/Out	Data Bus
58	Vcc	3.3V	Power
59	P30/TxD0	Out	CRUM I2C Bus Control
60	P31/TxD1	Out	For Debug
61	P32/RxD0	In/Out	12C Bus DATA
62	P33/RxD1		Option Cassette Detect Signal
63	P34/SCK0	Out	12C Bus Clock
64	P35/SCK1	In	USB Detect Signal
65	Vss	GND	Ground
66	P60/DREQ0/ CS4	Out	Not use
67	Vss	GND	Ground
68	Vss	GND	Ground
69	P61/TEND0/ CS5	In	Flash ROM Ready/Busy
70	P62/DREQ1	Out	Outconnect telephone control
71	P63/TEND1	Out	USB I/F Control
72	P27/PO7/ TIOCB5/TMO1	Out	Not use
73	P26/PO6/ TIOCA5/TMO0	Out	
74	P25/PO5/ TIOCB4/TMCI1	Out	Power OFF Signal
75	P24/PO4/ TIOCA4/TMRI1		Print Start Signal
76	P23/PO3/ TIOCD3/TMRI0	Out	Duplex Motor Drive
77	P22/PO2/ TIOCC3/TMRI0	Out	Duplex Motor Drive
78	P21/PO1/ TIOCB3	Out	Duplex Motor Drive
79	P20/PO0/ TIOCA3	Out	Duplex Motor Drive
80	WDTOVF	Pull-Up	Watchdog Timer Over flow
81	RES	In	Reset Input
82	NMI	Pull-Up	NMI Interrupt
83	STBY	Pull-Up	Stand-by
84	Vcc	3.3V	Power
85	XTAL	19.6608MHz	System Clock
86	EXTAL	19.6608MHz	System Clock
87	Vss	GND	Ground
88	PF7/fai	Pull-Up	System Clock
89	Vcc	3.3V	Power
90	RF6/AS	Out	Software Reset Signal
91	RD	Out	Read Enable
92	HWR	Out	High Write Enable
93	PF3/LWR	Out	Low Write Enable
94	PF2/LCAS/ WAIT/BREQO	Out	151 Selector Signal
95	PF1/BACK	Out	151 Selector Signal

No.	SIGNAL	In/Out	DESCRIPTION
96	PF0/BREQ	Out	151 Selector Signal
97	P50/TxD2/IRQ4	Out	IMC2 Status Transmission
98	P51/RxD2/IRQ5	In	IMC2 Status Reception
99	Vss	GND	Ground
100	Vss	GND	Ground
101	P52/SCK2/IRQ6	In	IMC2 Status Transmission Enable
102	P53/ADTRG/ IRQ7/WAIT/ BREQO	Out	IMC2 Status Reception Ready
103	Avcc	3.3V	A/D Power
104	Vref	3.3V	A/D Reference
105	P40/AN0	In	Thermistor Analog Input
106	P41/AN1	In	SPF Wide Sensor
107	P42/AN2	In	151 Selector Input
108	P43/AN3	In	151 Selector Input
109	P44/AN4	In	151 Selector Input
110	P45/AN5	In	151 Selector Input
111	P46/AN6/DA0	In	Not use
112	P47/AN7/DA1	In	Analog Input(TC)
113	Avss	GND	Ground
114	Vss	GND	Ground
115	P17/PO15/ TIOCB2/TCLKD	Out	Scan stop Signal

No.	SIGNAL	In/Out	DESCRIPTION
116	P16/PO14/ TIOCA2	Out	Scan start Signal
117	P15/PO13/ TIOCB1/TCLKC	Out	Trans start Signal
118	P14/PO12/ TIOCA1	Out	Polygon Motor Clock
119	P13/PO11/ TIOCD0/TCLKB	Out	SPF Motor Drive
120	P12/PO10/ TIOCC0/TCLKA	Out	SPF Motor Drive/Mirror Motor Step count
121	P11/PO9/ TIOCB0/DACK1	Out	SPF Motor Drive
122	P10/PO8/ TIOCA0/DACK0	Out	SPF Motor Dribe
123	MD0	GND	CPU Mode Control Input(Mode4)
124	MD1	GND	CPU Mode Control Input(Mode4)
125	MD2	Pull-Up	CPU Mode Control Input(Mode4)
126	PG0/CAS	Out	Not use
127	PG1/CS3	Out	ChipSelect for I/O ASI
128	PG2/CS2	Out	ChipSelect for ASIC

(3) Image process ASIC (HG73C141HFV)

a. General

The ASIC is composed of the three major blocks: the image process section, the print control section, and the I/F section.

•Image process section:

With image data from the CCD PWB in the operation mode determined by the register setup, shading, AE process, input γ correction, area separation, filter process, resolution conversion, zoom process, output γ correction, binary conversion (error diffusion, dither method, simple binary conversion) are performed.

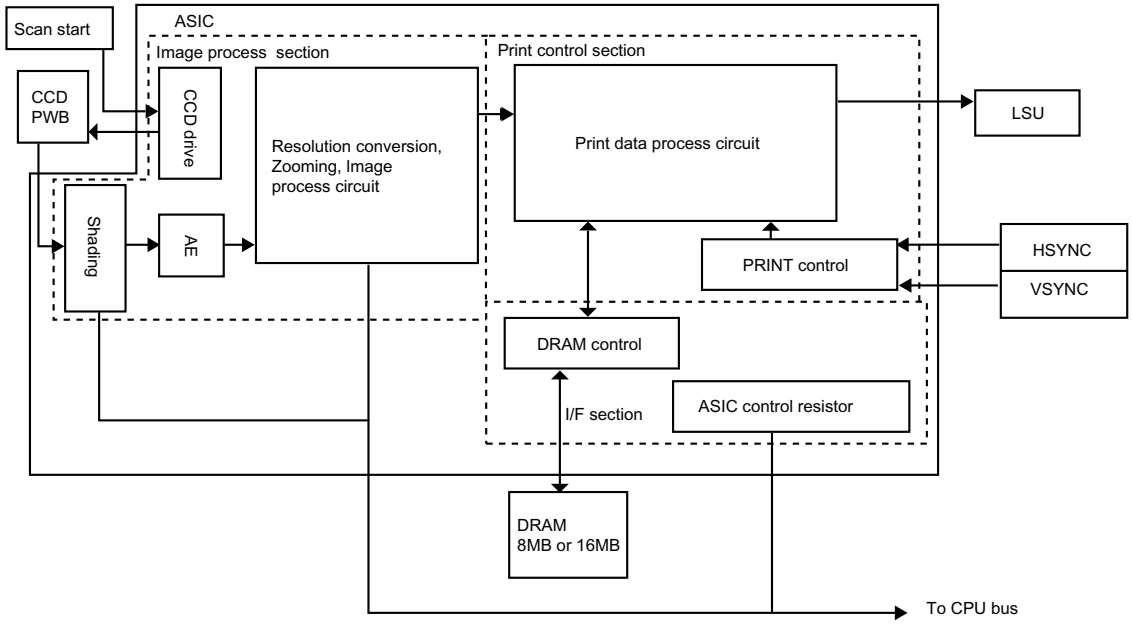
•Print control section:

When copying, the image-processed data are outputted to the LSU according to the LSU writing timing. When scanning, the image data are made into 8bit width and outputted to the I/F section (USB).

•I/F section:

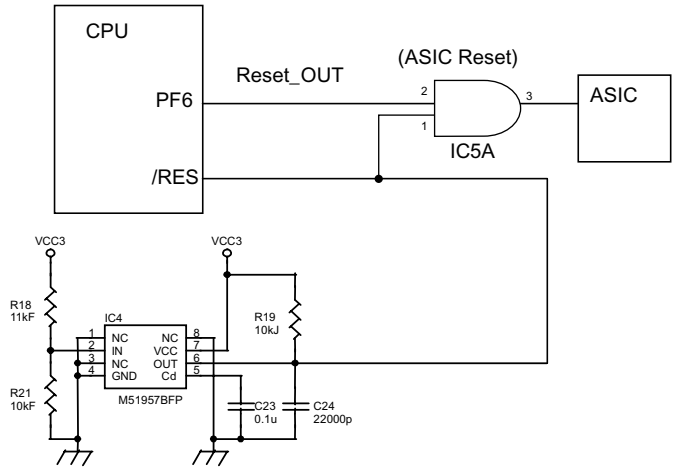
Controls the DRAM which is the image data buffer, and processes data send/receive between the USB I/F and the IEEE1284 I/F.

The ASIC is controlled by writing the operation mode and the necessary setup values of the operation mode into the ASIC control register before starting each operation. (For ASIC Pin configuration, refer to the table at the end of this document.)



(4) Reset circuit

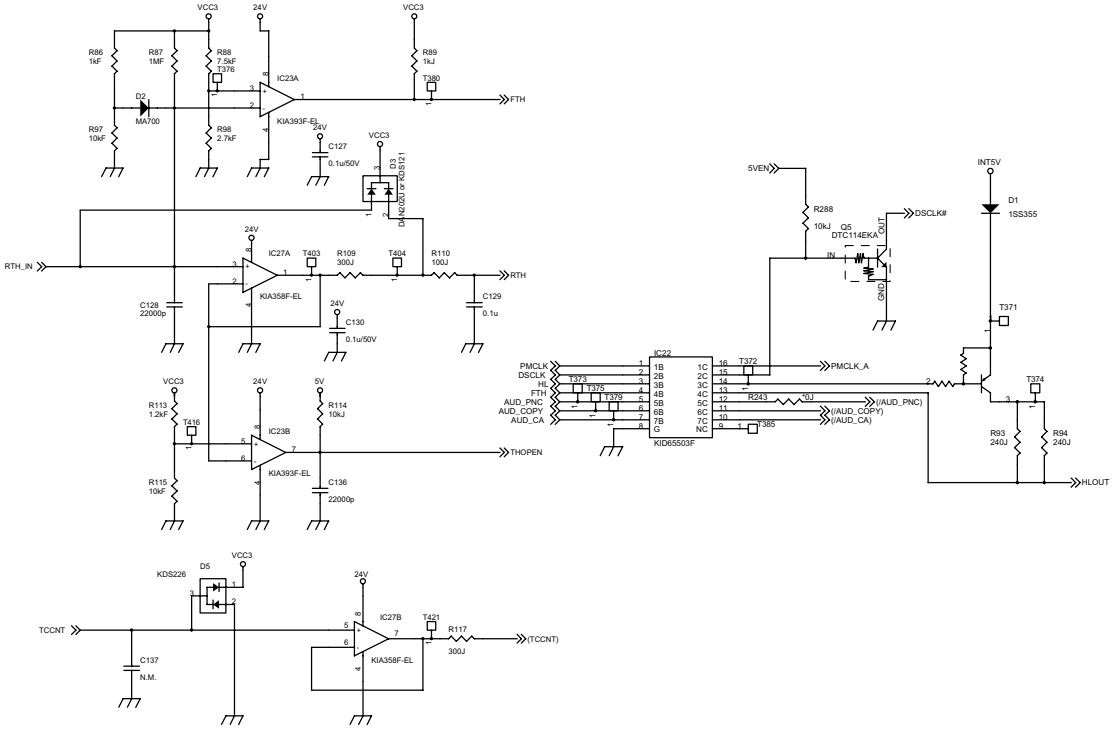
This circuit detects ON/OFF of power to control start/stop of each circuit. The 3.3V voltage of the main PWB is detected by the reset IC to generate the reset signal.
When the power voltage reaches the specified level, the circuit operations are started. Before the power voltage falls below the specified level, the circuit operations are stopped to prevent against malfunctions.



(5) Heater lamp control circuit

a. Outline

The heater lamp control circuit detects the heat roller surface temperature and converts in into a voltage level. The converted voltage is inputted to the CPU analog input pin.
The CPU converts the inputted analog voltage into a digital signal level and compares it with the set value of the simulation to control on/off the heater lamp according to the level, maintaining the heat roller surface temperature at a constant level.



The lower the heat roller surface temperature is, the greater the thermistor resistance is, and vise versa.
Therefore, the lower the heat roller surface temperature is, the higher the thermistor terminal voltage is, and vise versa. The thermistor terminal voltage is inputted to the CPU analog port.
The CPU controls ON/OFF of the heater lamp by this input voltage level.

[High temperature protect circuit in case of CPU hung up]

For IC23 3pin (reference voltage), +3.3V is divided by the resistor.
The thermistor terminal voltage is inputted to IC23 2pin.
When, the voltage at 2pin becomes lower than the voltage at 3pin (when the heat roller temperature is about 220 - 230°C), IC23 1pin becomes HIGH, and the HL signal is lowered to the GND potential through IC22, stopping generation of the heater lamp ON signal. (IC23 1pin is normal LOW.)

[When the heat roller surface temperature is lower than the set level]

1) Since the thermistor terminal voltage is higher than the set level, the HL signal from the CPU becomes HIGH.
2) The HL signal is turned to be the HLOUT signal through IC22 protect circuit, and inputted to the photo triac coupler on the power PWB.
3) When the internal triac turns on, a pulse is applied to the gate of the external triac. Consequently a current flow from the power source through the heater lamp to the triac, lighting the heater lamp.

[When the heat roller surface temperature is higher than the set level]

1) Since the thermistor terminal voltage becomes lower than the set value, the HL signal from the CPU becomes LOW.
2) The HL turns LOW, the photo triac coupler on the power PWB turns OFF, the external triac turns OFF, and the heater lamp turns OFF.

[In case of the thermistor open]

The voltage at IC23 6pin over the voltage at 5pin to drive the output THOPEN at 7pin to LOW. This is passed to the CPU and the trouble code "H2" is displayed.

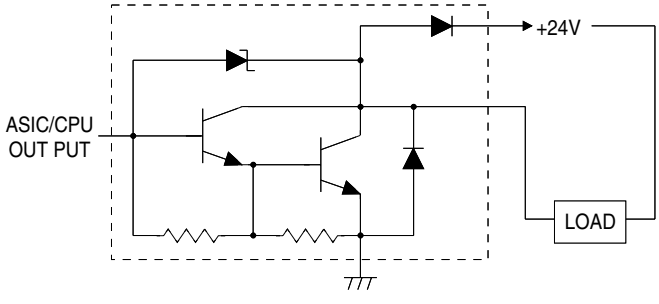
(6) Driver circuit (Solenoid)

a. Outline

Since the load signal from the CPU or the ASIC cannot drive the load directly, it is passed through the driver IC to drive the load.

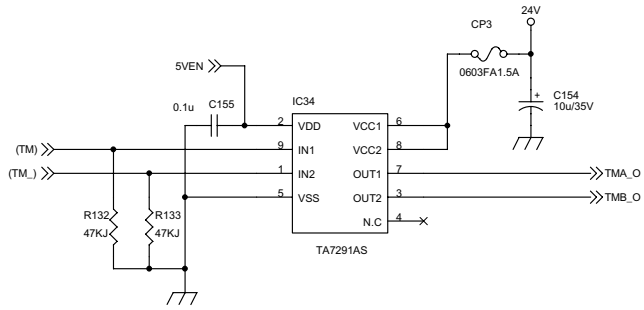
b. Operation

The driver circuit forms a Darlington circuit with transistors. Therefore a large drive current is obtained from a small current (ASIC output current). When the driver input voltage (base resistance input) is HIGH (+3.3V), the transistor turns ON to flow a current in the arrow direction, operating the load. When the driver is ON, the driver output terminal voltage is 0V.



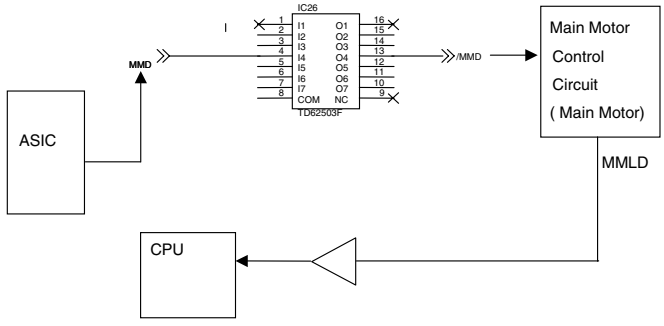
(7) Toner supply motor drive circuit

The IC34 is the motor control IC, which generates the pseudo AC waveform with the pulse signals (TM, TM-) outputted from ASIC, driving the toner supply motor.



(8) Main motor drive circuit

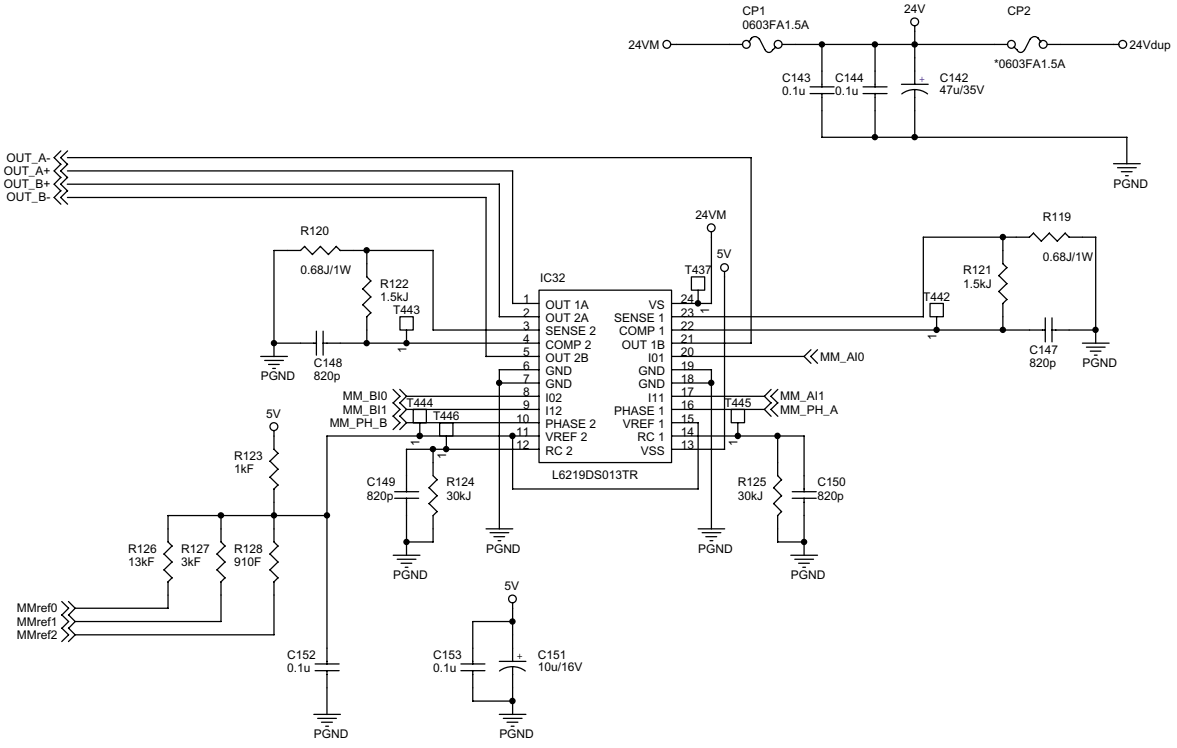
The main motor is driven by the MMD signal from ASIC. While the main motor is rotating, the MMD signal is driven to HIGH and passed through IC26 to the control circuit in the main motor to rotate the main motor. When the main motor speed reaches the specified rpm, the MMLD signal is turned LOW and passed through IC115 to the CPU.



(9) Mirror motor control circuit, Duplex motor control circuit

Stepping motors are employed for the mirror motor and the duplex motor. The driver for IC32 (for mirror motor) is the bipolar drive L6219DS. For control, the ASIC outputs the drive signal to the IC. They drive each motor in 1-2 phase excitement or 2-phase excitement. Each motor switches the motor current value in each magnification ratio.

Mirror motor drive circuit



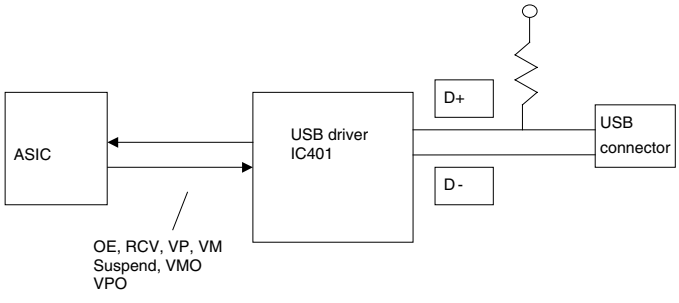
(10)I/F circuit

a. General

The I/F circuit is composed of the USB driver and the IEEE1284 driver, and performs hard interface with the ASIC (MCU PWB).

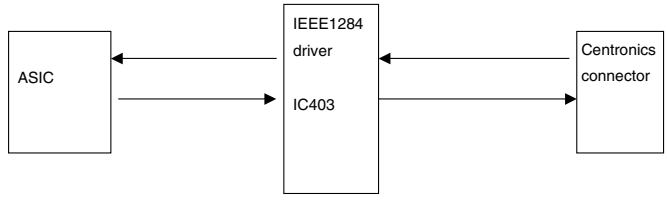
b. USB circuit

With the USB driver, the differential signals (analog) of USB are converted into digital signal, which are sent to the ASIC. In the reverse procedure, interface between the ASIC (engine) and the host is performed.



c. IEEE1284 circuit

The IEEE1284 driver is used to perform interface between the ASIC (engine) and the host.



(11) Carriage unit

a. General

The carriage unit is provided with the CCD PWB, the inverter PWB, and the lamps. It scans documents and transfers AD-converted image data to the ASIC.

b. CCD PWB

The CCD on the CCD PWB employs the color image sensor uPD8861 of 5400 pixels x 3 lines, and scans documents in the main scanning direction in the resolution of 600dpi/US letter size.

Image data scanned by the CCD are inputted to the AFE (AD9826), and subject to CDS, amplification, and AD-conversion. Then digital data are outputted to the MCU PWB and to the ASIC, which performs image process of the digital data.

c. Lamp inverter PWB

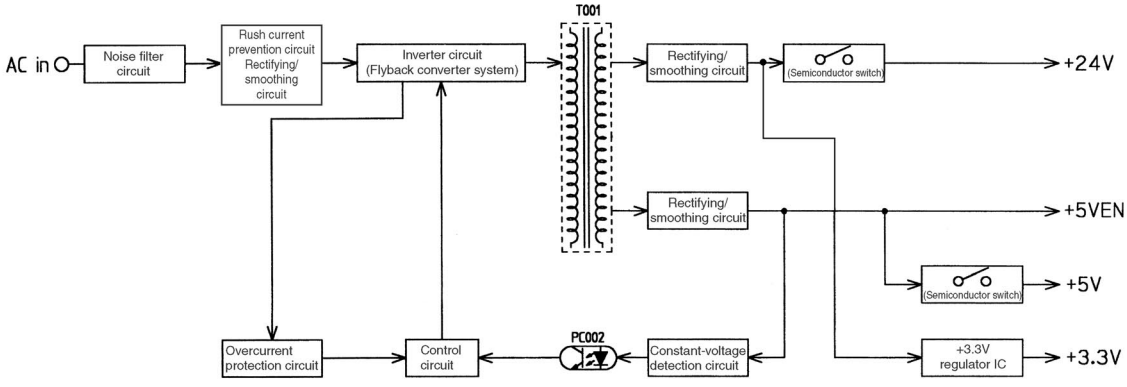
The transformer is controlled by the lamp control signal from the MCU PWB. The transformer output controls lighting of the cool cathode ray tube.

B. DC power circuit

The DC power circuit directly rectifies the AC power and performs switching-conversion with the DC/DC converter circuit, and rectifies and smoothes again to generate a DC voltage.

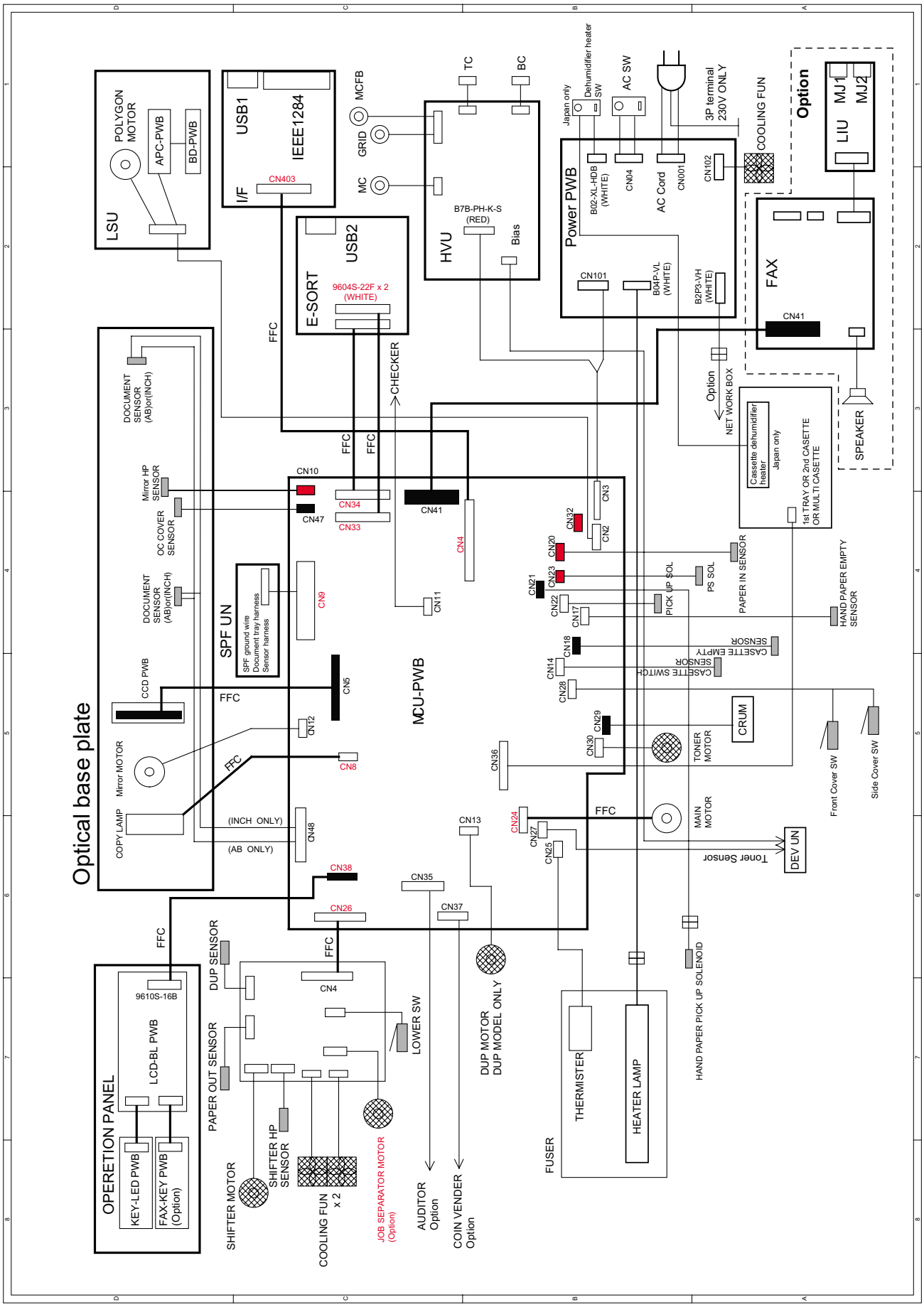
The constant voltage control circuit is of +5VEN. +24V are of the non-control system by winding from the +5VEN winding. As shown in fig (1), +24V, and +5V are provided with the ON/OFF function by external signals. +3.3V is outputted from 24V to the step down converter.

Refer to the block diagram.

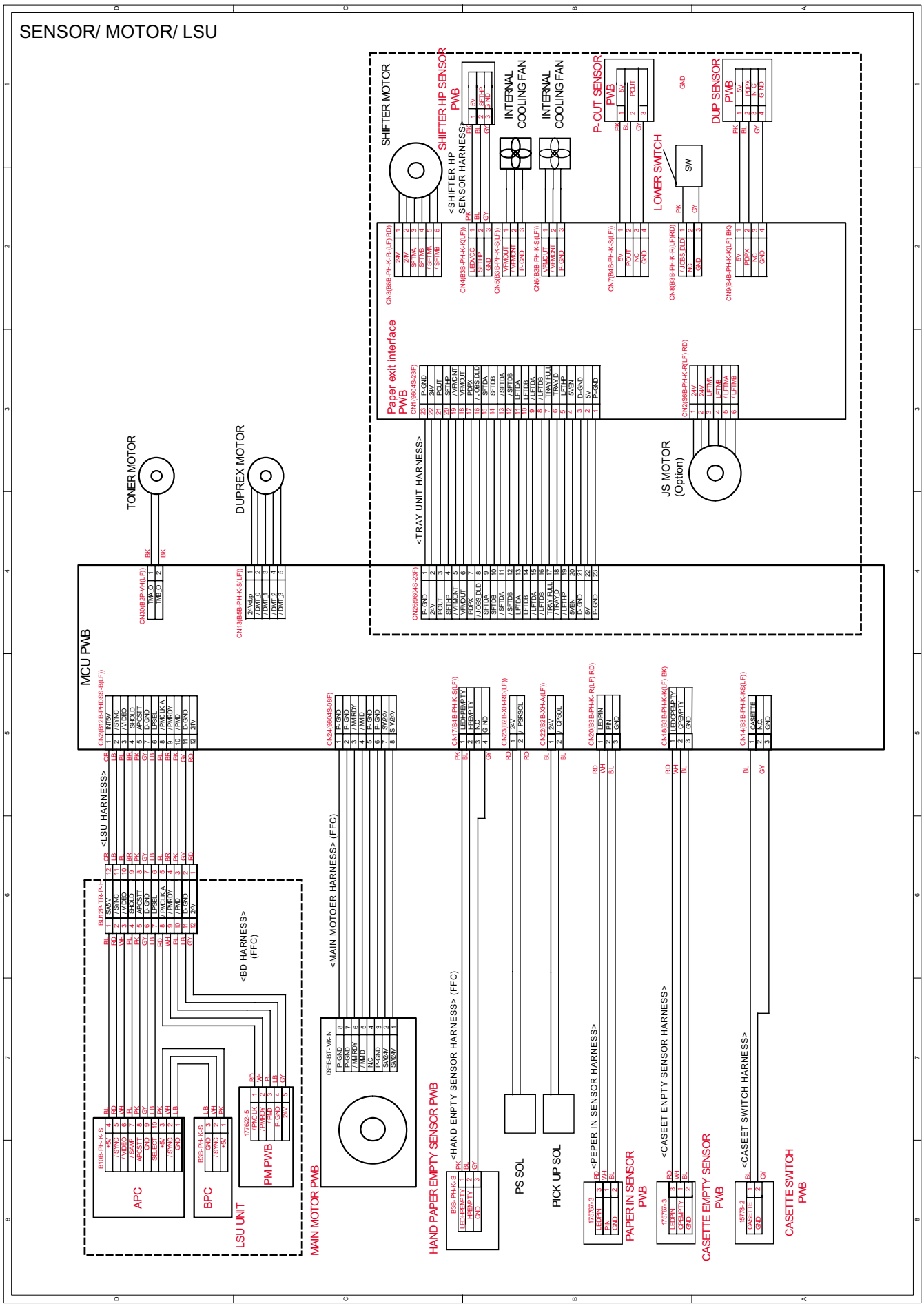


3. Actual wiring diagram

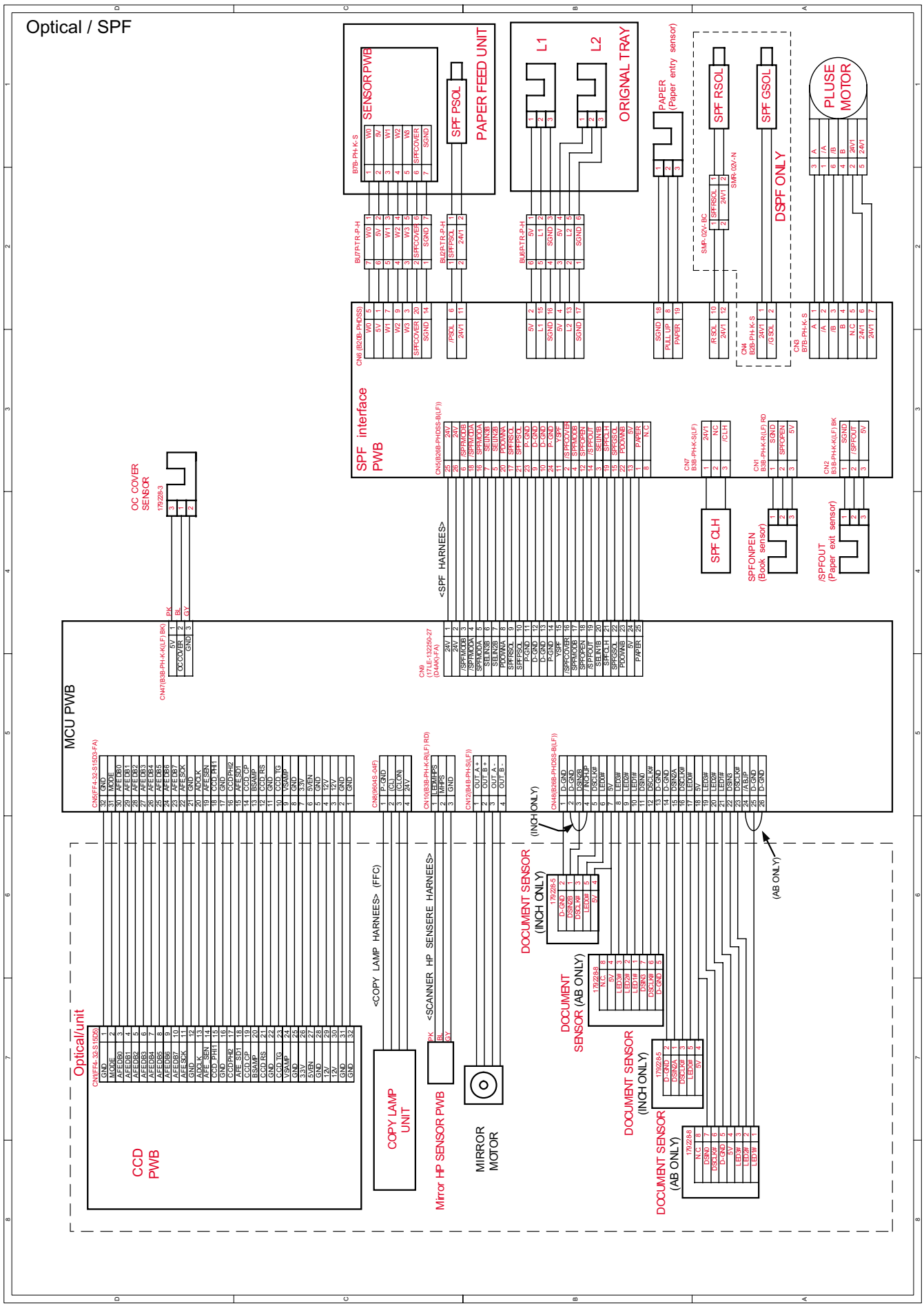
Actual wiring diagram 1/7



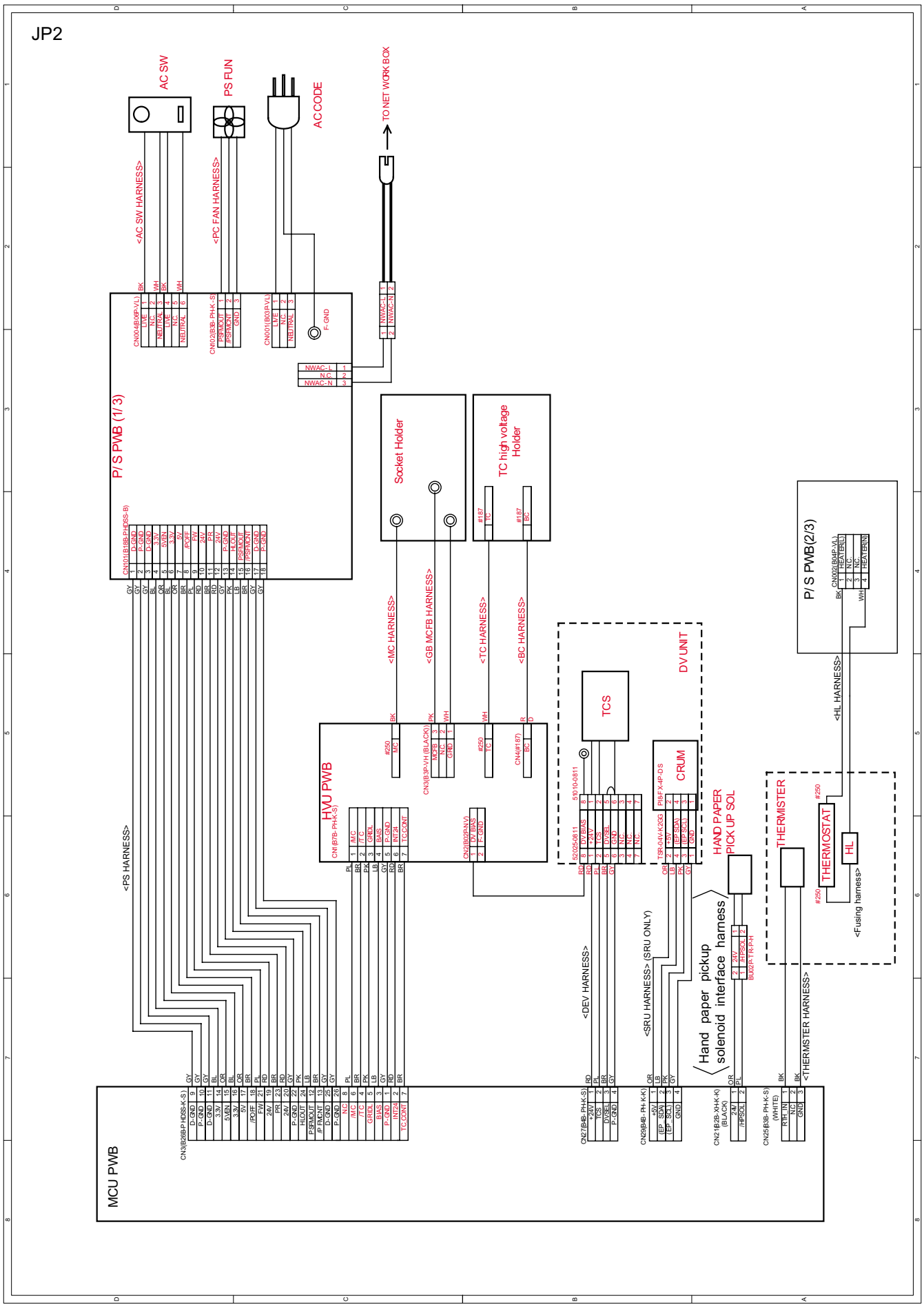
Actual wiring diagram 2/7



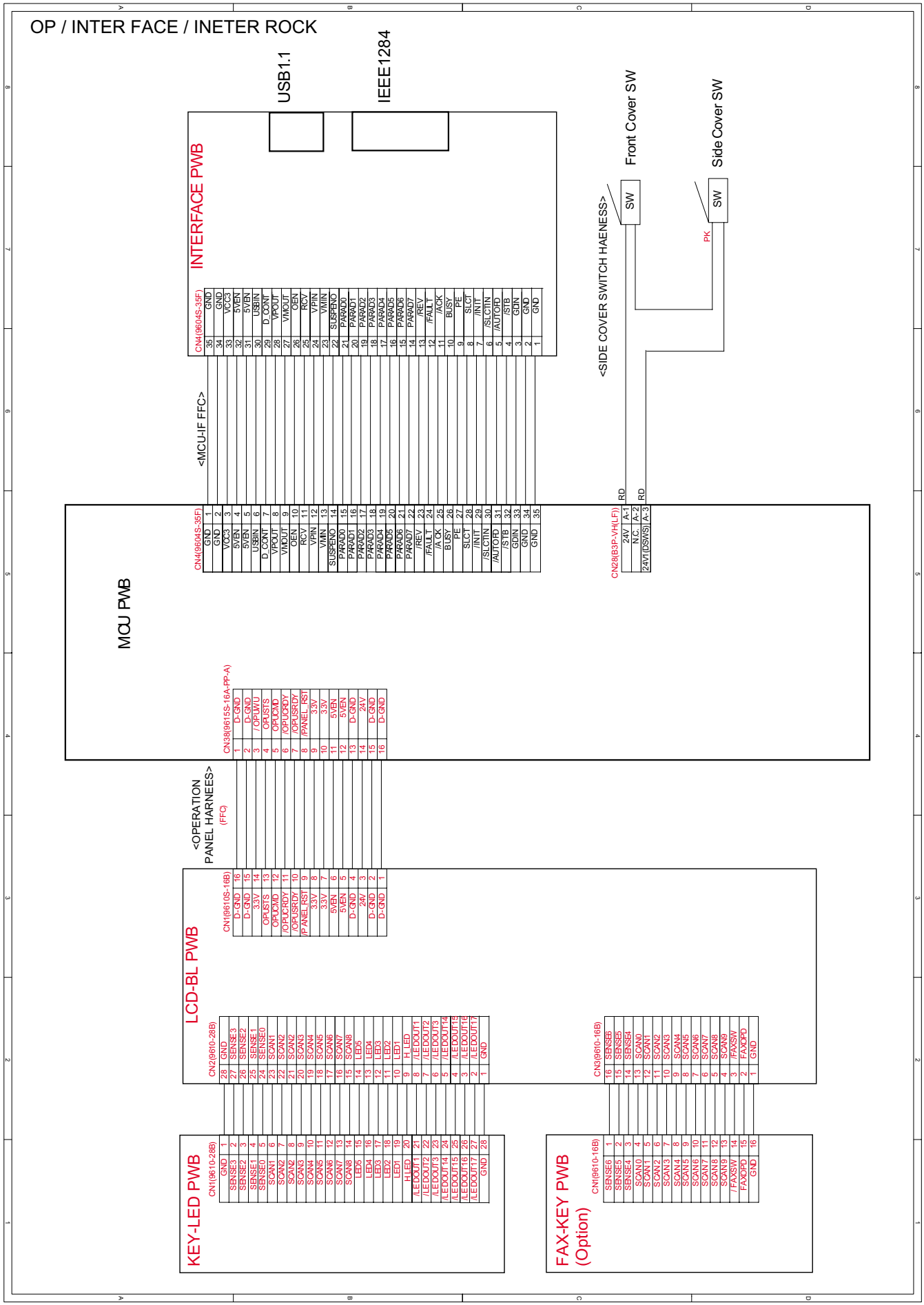
Actual wiring diagram 3/7



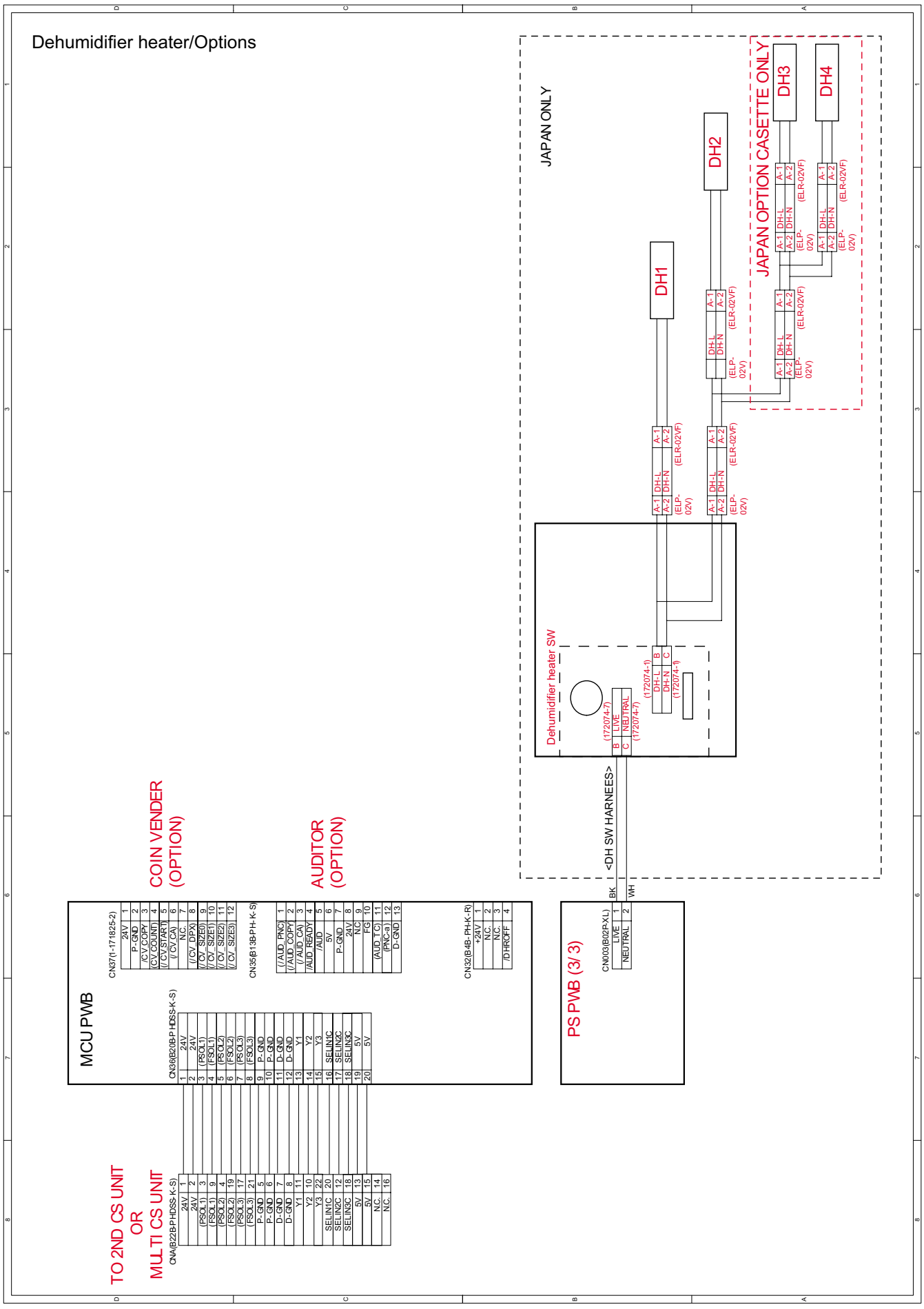
Actual wiring diagram 4/7



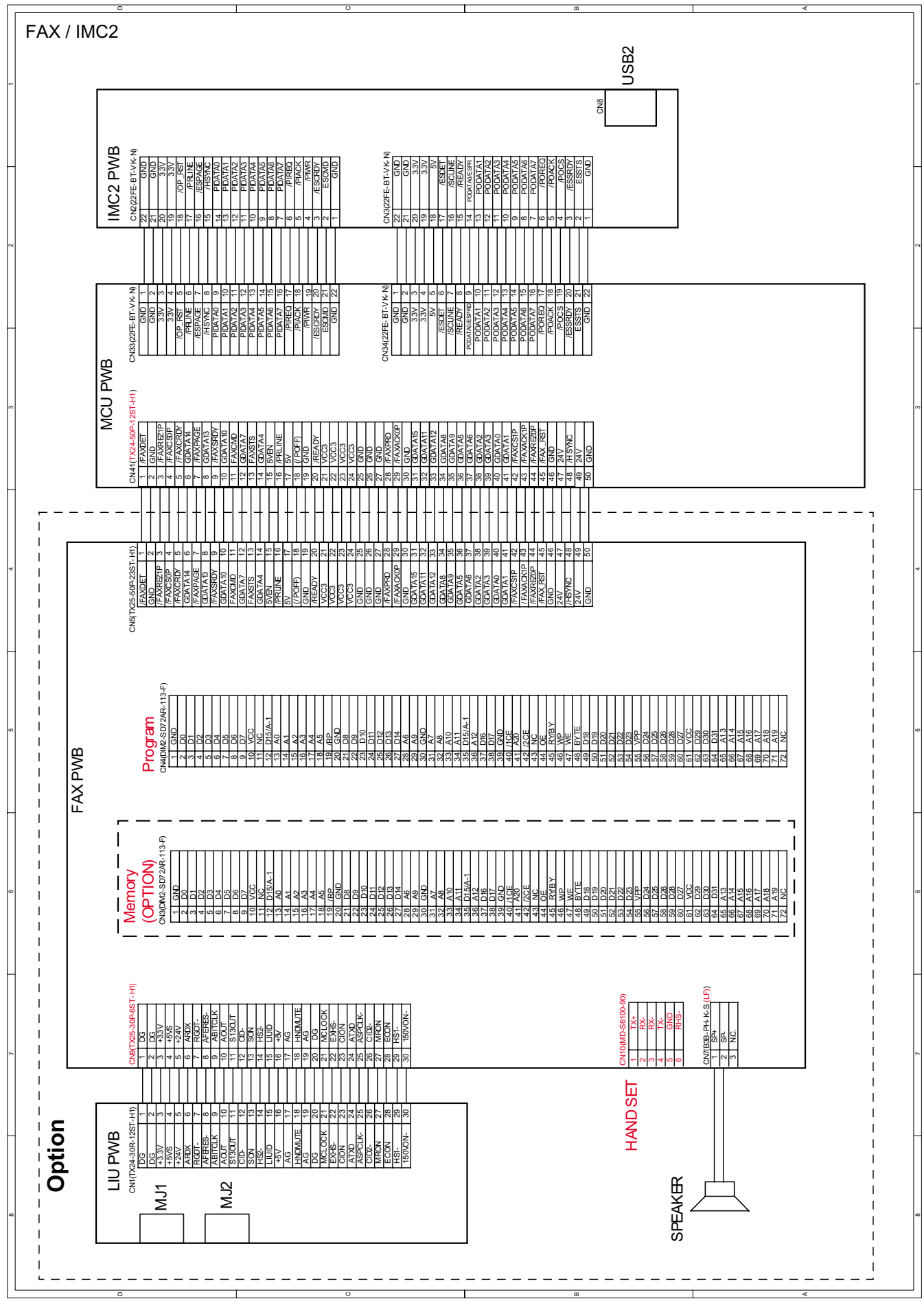
Actual wiring diagram 5/7



Actual wiring diagram 6/7



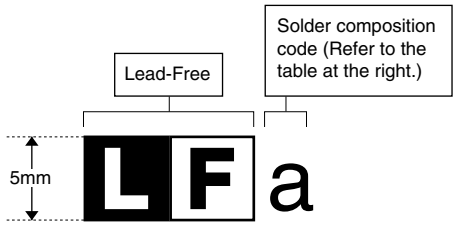
Actual wiring diagram 7/7



LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.
Never use conventional lead solder thread, which may cause a breakdown or an accident.
Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.
Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.
If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.
If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

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